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THE SAN ANTONIO PUBLIC SCHOOL SYSTEM

A SURVEY

CONDUCTED BY J. F. BOBBITT
OF THE SCHOOL OF EDUCATION
OF THE
UNIVERSITY OF CHICAGO
JANUARY, 1915



AUTHORIZED BY RESOLUTION OF
SAN ANTONIO SCHOOL BOARD
PASSED DECEMBER 16, 1914

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Chapter I.

PREFATORY STATEMENT.

School surveys are of different types. They vary with the purpose in view. The most helpful kind probably is one: (1) that sympathetically looks to the good that exists in the school system; (2) that sees this good not as the end of progress, but as gains made that are steps toward further gains; (3) that suggests constructive plans for further progress; and (4) that shows the reasons for the plans recommended so as to permit verification of their validity.

In public-spirited communities everywhere—and only a little observation is required to show that this includes San Antonio—education is at present undergoing rapid changes. Schools are reaching more people, are affecting them for a longer period, are called upon to do more things than formerly, are trying to adapt the school-work to the real needs of men, and are searching out more effective means and methods. Both laymen and schoolmen are somewhat bewildered at present at the multitude of proposals being made, and of new educational movements inaugurated. There seem to be so many diverse purposes and so many cross currents that it is sometimes difficult to know in just what direction our educational craft is being steered, or in what direction it ought to be steered. It is probable, however, that the changes now taking place are only in their beginnings; and that they will be pretty far-reaching before stability is attained again.

In such a time of change and transition, cities are very frequently nowadays calling in the help of what we may call the consulting educational specialist. He is called in just as a physician calls in the consulting physician; or a construction manager, the consulting engineer. In one sense he is an outsider, and his ability to advise is largely dependent upon this very fact, since he comes with fresh vision and unprejudiced mind. In another sense he is not an outsider, since he is for the time being as much an employe of the Board as is the superin-

tendent or the business agent. Simply, he is a temporary employee. This, I suspect, is the justification for my temporary employment in San Antonio.

Upon my arrival in the city, I inquired of the Chairman of the Survey Committee as to the purpose of the survey. He replied that the one thing desired was an increase in the efficiency of the school system; that I was to study the situation in my own way and to make any recommendations that in my judgment would promote the efficiency of the schools. Beyond this no instructions were given nor suggestions made. I was given a perfectly free hand to conduct the work as I saw fit. I wish to express my appreciation of the way this absolute freedom was combined with a universal courtesy and willing helpfulness on the part of every one in any way concerned in the work. In every contact with school board, survey committee, superintendent, business agent, superintendent of buildings and grounds, office staff, principals, teachers, janitors, and representatives of the general community, there was invariably that courtesy and hospitality for which the South is renowned,—certainly justly so if San Antonio is representative in this respect.

The report is based upon personal observations and conferences covering four weeks, and upon facts derived from numerous documents. Nineteen out of the twenty-nine elementary schools of the city were visited while classes were in session, a half day at a building being the usual length of visit. Several other elementary buildings were visited during the vacation week when the schools were not in session. An aggregate of more than two full days was spent at the Main Avenue High School; about one and a third days at the Brackenridge High School; and about one-half day at Douglass High School.

It is felt that the amount of visiting done in the elementary schools was sufficient for a fair understanding of the general nature of the elementary work in the city. There is a rather fully detailed course of study which prevails with certain modifications in all of the elementary schools. This course, although it is continually being modified, is in its main outlines a thing

of several years standing. This has brought about a large degree of uniformity in the work of the various buildings. Moreover, the grade-leader institution which provides that one of the building principals shall be responsible for the teaching of a given subject in certain of the grades throughout the city further results in a fairly large uniformization of the work. Then there is the uniform textbook series. With so many things making for uniformity, it is felt that a visit to nineteen of the buildings was sufficient for showing the nature of the elementary work done throughout the city. Visits were so distributed as to reach schools of the various races and nationalities.

Before entering upon findings and recommendations, I wish to anticipate two or three objections that are sure to arise upon the reading of my report. One is that things are often recommended which are clearly impossible. It is quite true that many things are recommended that can not be accomplished suddenly. A ship sailing from Galveston for Australia can not arrive in one day, nor even in one week; but because it can not arrive suddenly is no reason why it should not set out. In one day it can be expected to cover only one day's journey, and in one week only one week's journey; but it can rightly steer the first or any successive day's journey only as its far-distant destination is held in mind by captain and helmsman. And so it is with educational progress along most lines. The journey ahead of our profession by way of modernizing our labors, making them efficient, and making them serve twentieth century needs is yet a long one. The various ends in view can usually be attained only after many years of continuous labors toward those ends. Next year's moderate progress can be rightly accomplished, however, only as it keeps the more distant ends in view. Educational progress to be solid and substantial must generally be reasonably slow. This does not mean, however, that it should be blind; nor even that it should be near-sighted, looking only to those things that can be quickly and easily reached. There is nothing in man's world that should be more far-seeing than education.

Since this report is for the layman of San Antonio as fully as for the school people, a second objection that will arise is

that the discussion often is unnecessarily complicated and technical. In reply let me say that it is written from the simple point of view of community needs. From beginning to end, education is looked at as a very practical common-sense kind of community service. The matters are set forth as fully as possible in common everyday terms. The trouble is that the field of education is itself complicated and difficult; and any language that shows the field truly must show it for what it is. To evade the complications is to slight the work. Naturally a report can be simplified by leaving out everything that requires mental effort; but it could not be a very searching or effective piece of work; and it would under-rate the intelligence of the layman.

Statements are sometimes rather fully at variance with conventional or traditional educational thought. Occasionally to those of a pre-social educational point of view, judgments will appear to be so wide the mark as apparently to discredit the judgment of the writer. All that is asked in such cases is that appeal be made not to tradition nor to special interests but to unbiased common sense on the one hand; and on the other, to twentieth century leaders of social thought and action in this country. Generally in a city so large as San Antonio, the issue involved will be of sufficient importance to warrant such appeal and investigation. If my report can bring about such continuing investigation, it will have accomplished its largest purpose.

A third objection will be that there is too much educational interpretation and discussion in this report. On the contrary, in my opinion, there is too little. Things called into question in whole or in part involve an annual expenditure on the part of the city of not less than half of the school budget,—let us say \$250,000; or a million dollars every four years. Our discussion relates, therefore, to policies of large moment both to taxpayers and to children and youth. The relatively few pages given to things involving such large expenditures of time and money and effort are really inadequate for proper community understanding. The whole discussion of these momentous questions is covered in a space equivalent to that of a single issue of a Sunday newspaper, for the printing of which the people are willing

to pay the entire bill once every week. Instead of this report's presenting too much discussion of these educational problems, it really presents but a beginning of discussion for the purpose of precipitating further discussion. Just enough is said to introduce the problems. It is for the community itself to carry forward most of the discussion. The newspapers in all probability will be glad to aid in carrying it on very much further.

Finally, a fourth objection to be made is that I have been so busy in looking for the places where the work might be tightened up and made more efficient that I have tended to lose sight of the great amount of good and even excellent work that is going on in the schools of San Antonio. My method of treatment actually lends color to this objection, since I usually give a small amount of space to pointing out the gains that have been made and then a fairly large amount of space in pointing out further gains yet to be accomplished. As we point to things not yet done and which need yet to be done we are pointing to things which may be called shortcomings or defects in the school system. In my opinion they can not be rightly so called. When a ship sailing from Galveston to Australia does not reach its port in a week this can not be imputed to the ship as a shortcoming or a failure. Likewise, the falling short of the desirable in San Antonio's school work is to be looked upon simply as incomplete progress; as a journey that is only half traveled. After the ship referred to has covered half its journey, captain and helmsman can drop from view most of the things behind them. What they must keep in mind very fully is that portion of the journey that is yet ahead of them. And so in discussing the school-work of the city. **Much progress has been made; the schools are in a healthy growing condition; in many respects they are fully abreast with the best work going on in any portion of our country. The city will have to be numbered among cities of the educationally progressive type.** This progress that has been made, however, is already a matter of history. It need not be set down in a report in any full fashion because it exists in actual concrete form within the city, and it can be seen by any-

body who has sufficient interest to look. The thing that the city needs to give its attention to and to keep fully in mind is not that part of the journey which is behind them, but that portion of it which is ahead of them. It is for this reason that we are mostly concerned in this report with pointing out the lines of incomplete growth and to pointing the directions along which further growth needs to be guided.

It is well to remember also that as one points to the needs of advance in the schools of San Antonio, one is usually pointing to things such as found in almost every city in the country. Only the particular mode of manifestation is peculiar to any one city. Neither the laymen nor the teachers of San Antonio need feel in the slightest chagrined at having the defects,—or I would call them, the needs of further growth,—pointed out in this report. The city that has reached the point of searching self-examination is farther along the road of progress than those content to let things drift without incurring the trouble of taking their bearings.

In various sections of this report I shall have occasion to point out what appear to be a number of seriously wasteful shortcomings, as we shall have to call them for convenience. Most of them, however, can not be laid at any one man's door. Responsibility in most cases is fairly widely distributed; and present conditions have grown out of previous ones in which the responsibility was equally widely distributed. For this reason we have made no attempt to locate personal responsibility for educational deficiencies.

In order that our examination of the fundamental aspects of education in San Antonio should not be lost in a multitude of details, we have held fairly consistently to a discussion of these main outlines of the work. We have purposely refrained from entering into a discussion of the details of which the larger things are made up. If these latter are properly taken care of then, the details will fall into their places in perfectly natural ways.

Respectfully submitted, J. F. BOBBITT.

University of Chicago, March 27, 1915.

Chapter II.

THE WORK OF THE SCHOOLS.

According to the last school census there were in San Antonio 21,983 children of school age. They were of diverse races and nationalities. The number of children of the different nationalities is shown in the following chart:

Ages	Americans and Europeans	Mexican	Negro	Total
7 years	1,456	1,076	267	2,799
8 years	1,386	1,016	240	2,642
9 years	1,192	898	234	2,324
10 years	1,207	889	212	2,308
11 years	1,138	838	191	2,161
12 years	1,174	847	182	2,203
13 years	1,078	798	172	2,048
14 years	1,116	830	210	2,156
15 years	845	627	164	1,636
16 years	869	652	179	1,700
Total	11,461	8,471	2,051	21,983

To these we must really add the number 17 and 18 years of age, now that the high school training,—full time or part time— is coming to be looked upon as a necessity. And as kindergartens are introduced those 6 years of age are being included among the number for which the city admits educational responsibility. The number of children needing education is therefore considerably larger than shown by the census,—probably above 25,000.

Now what should be done by the schools of San Antonio, public and private, for these 25,000 children? What are the results to be achieved that are deemed so important that the people of the city are willing to spend \$500,000 a year upon the public schools, and another quite large amount upon the parochial and private schools? It may at first seem unnecessary to raise such a question. In the minds of many, the schools have long known

what to do; the central problem is merely one of getting it done efficiently.

As a matter of fact, neither in San Antonio nor in any city have the purposes of education been clearly defined. The majority of the weaknesses in any system trace back directly or indirectly to this vagueness of purpose. Communities generously provide funds for the work, but nowhere have definite plans and specifications been drawn up that fully and completely define the results that are to be achieved by the public schools, in terms of what the community needs. If a man should set aside \$500,000 for constructing a building, and then furnish no definite plans or specifications as to the particular things to be done, there is small probability that he would get what he needed. There is large probability that much of the work would be badly adapted to his purposes; that it would be of inferior quality; and that there would be a large waste of money. If he built a new \$500,000 building each year in this same unspecified manner, the losses would be cumulative.

It is just as necessary in carrying forward the labors of a school system to know what things need to be done and what things need not to be done. Unless the clearly needful things are definitely set down for the work of the schools, there is extremely small probability that an annual expenditure of \$500,000 of the people's money will secure a maximum of what might be obtained for that money; or anything near it. The waste is likely to be just as large as in the case of the building referred to. Where educational purposes are not clearly defined in terms of community needs, a city is indeed fortunate if the annual waste is not less than one-fifth of the amount expended, or in this case \$100,000. And the losses are cumulative. And the losses to the children are far greater than this mere financial loss.

Let us here enumerate some of the educational needs of San Antonio which probably can not be called into question by any thoughtful individual; and then in succeeding chapters discuss the situation with reference to these matters in somewhat greater detail.

The community money is spent and the sacrifices made for the purpose of fitting the 25,000 children for effective performance of their adult activities. A fully rounded educational program should therefore be designed:

(1) To fit the children and youth for effective performance of the labors of their life's callings.

(2) To lay a broad and secure foundation for sound judgment as to the various social, economic, and industrial problems with which one is concerned as a citizen in a democracy.

(3) To lay a secure foundation in knowledge and in habits for life-long health and physical vitality.

(4) To develop habits of healthy and socially desirable leisure occupations.

(5) To give effective training in the means needed for social intercommunication; namely the language or the languages that one actually needs.

(6) To train individuals for the activities concerned in the rearing and education of children; or in other words, the functions of parenthood.

(7) To train one for his religious activities.

Except as education seeks to make one more effective in performing his activities in one or another of these various fields, there can be no sound reason for expending the people's money for its support.

Whatever is done in school must be seen definitely to further one or another of these seven purposes.

Whatever can not be seen to further some one of these purposes has no place in the schools. It should not be permitted to live parasitic upon the funds provided by the community.

Whatever is now left out of the course of study which is needed for promoting effective training in any one of these seven fields should be included at the proper age and under the proper circumstances.

Naturally in our public schools for well-known reasons the training for religious activities can not be included under present conditions. Until the elements of the community can agree

among themselves, naturally they will have to find some other means of taking care of this training. That it must be left out of public education is the fault of this sectarianism and not of the schools.

In discussing the work of the public schools in San Antonio, we shall assume that unless a thing done can be justified on one of the six bases enumerated, it has no business there. We shall have occasion to point to a number of things that should be reduced in amount or dropped altogether. We shall also have to point out many additional things that ought to be included in the course of study since they are needs for the effective training for activities in one or another of these six fields.

The old educational doctrine that there must be studies for strengthening the mind contains nowadays as much truth as it ever did. But with the growing complexities of modern life and with the enormous amount of real knowledge and real training for sound judgment in the six fields of practical affairs enumerated, we are coming to see that in getting the necessary knowledge and judgment in these fields, we have nowadays enough mental work for all of the necessary strengthening of the mind,—and even some to spare. So much useful knowledge is now needed that there is no longer any necessity of including ancient, musty, useless studies merely for the intellectual gymnastics that they provide. They are no more needed than are dumb-bells by a blacksmith, or back exercises by a coal-heaver.

THE PLACE OF SCHOLASTIC EDUCATION.

The most substantial and fundamental portions of one's education are obtained out of school. As one looks at the fields of human vocation, of civic activity, of caring for one's health, one's recreations, etc., it is quite clear that it is through observation and participation on the part of children and youth in the real activities as found in home, shop, store, club, church, street, etc., that one gets the foundation of all of his training in each of the several fields enumerated. Not only does he get his basic training through such actual participation, but it is in fact the

only way in which it can be had. Only through the real experiences of life can one come to know the nature of the realities of life. This must be clearly realized before one can understand the place of scholastic education.

The educational work of the schools is only supplementary. It can not be rightly judged except as it is seen to be merely supplementary. The schools add to the knowledge obtained in one's social contacts. They round out this knowledge; they complete it; they correct the errors.

As living conditions nowadays grow more artificial and complicated, the amount of knowledge required is greatly increased. Much of this knowledge does not lie clearly upon the surface of affairs, is not generally diffused through the adult community, and cannot be got through social contacts, observation, and participation. The supplementary training by the schools grows more and more necessary, and greater in amount. It cannot be genuine or useful, however, except as it is supplementary to the fundamental training of the world itself, and fitted to the latter as exactly as a house is fitted to its foundation; or a tree to the roots out of which it grows.

Two complications of this simple relation need to be mentioned. In the first place, certain fundamental activities of the community are nowadays being transferred in part to the school itself, and carried on under its direction in order that the supplementary training may be intimately related to the fundamental portion. Garment-making, embroidery, cooking, canning, laundry work, the making of furniture, the construction of sidewalks, fences, buildings, etc., are actual vocational activities which are in some part being transferred to the school premises and done under the direction of the teachers. There is no intention of making the school a vocational institution in itself. These portions of community labor are transferred merely for administrative convenience in order to bring the foundation close to the educational superstructure which the schools are commissioned to build. Because of the necessity of having such foundation close at hand it is probable, even certain, that a much larger portion of practical, vocational production will in time be accom-

plished under educational direction for training purposes. Many such activities have to be transferred to and developed at the schools nowadays in order that children and youth may even have access to the fundamental activities. So specialized is industry becoming, so shut up within high walls with "No Admittance" posted on every door that the fundamental contacts with industry, once so easy for childhood, are being withdrawn. The school has to make good the deficiency. As fundamental contacts are narrowed outside, the scholastic supplementary must be correspondingly widened inside.

There are many fundamental matters of a type that cannot be transferred bodily to the schools, as for example factory work, mercantile work, specialized work in printing, house-cleaning, much of cooking, etc. For these, our progressive cities are coming to establish what is called part-time work so that the students may go out to the fundamental labors under the direction or at least advice of the teacher, and in this way lay the proper foundation and keep the proper intimacy between fundamental aspects of the training and the scholastic, supplementary aspects. There is also coming to be developed the plan of giving credit for many kinds of home-work,—a growing recognition that there is and should be a connection between foundation and superstructure.

There is a second complication entering in, which is very much more difficult to explain. An understanding of it is indispensable, however, before one can begin to discuss the efficiency or inefficiency of the school-work in San Antonio, or in any other city. The conception is simple after one gets it. Perhaps it can best be made clear by means of an illustration,—even if a somewhat extended one. Take, for example, the case of a civil engineer who is called upon to draw up plans for straightening, grading, and paving the crooked, irregular streets of a town in which he grew up as a boy. Such a man without touching his surveying instruments has already in mind the basic knowledge needed for his work. As a boy at play, roaming the streets on a boy's multifarious activities, he came to know every curve, street and alley, every angle, offset, hillock, depression, elevation, creek-bank, creek-winding, etc. At the time that he

learned these things, he learned them for no conscious or serious purpose ; simply, he was a boy at play, conscious of nothing more than the immediate activities of the moment, following his interests and his pleasures, and looking forward to no serious application of his knowledge. Yet out of this relatively aimless experience came his very thorough and secure knowledge of every geographical matter within the town. Had the knowledge been systematically gone after, with all the aimless play element left out, it could not have been anything like so well done.

When the engineer so brought up comes to the work of surveying the city, his activities take on an entirely different character. His surveying is for the purpose of getting facts. But the purpose is wholly conscious. His facts now must be complete, exact, and systematized. He must be careful, intensive, thorough. Everything must be carefully controlled for practical ends. Yet after all, his work on this level involves but a refining, completing, and ordering of the knowledge got as a boy at play.

For purposes of our discussion we shall call his first type of learning the Preliminary ; and the later type, the Practical, or the Functional.

This illustration shows two kinds of learning, both of which are absolutely indispensable for all our education. On the one hand, with only the play motive, following only the lines of interest, should children and youth, it appears, become acquainted with the general outlines of every important field of human knowledge and experience. Simply by wandering through the fields of knowledge without any particular consciousness of the serious values or purposes of the learning, they lay the wide and secure foundation for the exact studies that must necessarily come later. They read their history, for example, for the sake of their interest in the human story, the anecdotes, the biographies, the adventures, the struggles and conflicts, etc., etc. ; and all without any consciousness that they are laying the foundations for later civic knowledge and judgment. In their geographical readings, they imbibe the gossip of how people live in other lands and climes, or they follow geographically the campaigns of the present armies and navies in Europe, without any thought

of the fact that they are laying a geographical foundation later to be used for an understanding of industrial and commercial relations. All such preliminary studies, like children's play, need to be rich in detail, full of human color, infinitely varied, touched lightly and then left behind, taken up as prompted by interest not by logic, superficial, omnivorous, repetitious, and loosely organized. For such are the ways of childhood; and even of youth and adulthood in the hours of one's freedom.

To say that the preliminary portions of serious education are to be on the order of play no longer shocks the proprieties as it once did. Nowadays we better understand the serious values of play; and we recognize the value of harnessing up the play-motive when we wish strenuous exertion. It does not mean a lack of effort. It means an intensification of effort. It is the boy who wants to win in the spelling match who will manfully master the entire spelling book as a part of the game. It is the boy who wishes to surpass his mates in arithmetic, who takes it as a game, who will come nearest to mastering every difficulty. That which one enjoys is the thing at which one will work the hardest. Given a healthy play-motive and the right opportunities, and it is like having a high-power engine and a straight track ahead.

Education must not stop on this level, however. This is only preliminary to higher educational levels of a clearly practical functional character. Unless this higher level is reached and covered, half of education is not accomplished. After one has acquired preliminary familiarity with the field of history, for example, one is ready for taking up such civic questions as railroad regulation, or conservation of our natural resources, or control of public utilities, or any other of our thousand civic problems, and study their historical background by way of discovering their nature. No longer will he spontaneously follow the lines of interest. His studies must be held strictly to the topic in hand by the serious purposes involved. He is getting practical information to be used for judgment upon questions daily presented to the citizen in a democracy. Studies on this level must be careful, systematic, exact, thorough, and fairly

complete. Serious practical motives now entirely replace the play-motive. It should still be so done as to be enjoyable; but the question of its enjoyableness is not now the primary one. It is to be done because one knows the information is needed, whether one likes it or not.

Now let me indicate in a few words why I have given so much space to sketching the meaning of education of Fundamental and Supplementary, Preliminary and Functional:

1. The supplementary relation of school work to community life in San Antonio is not greatly taken into account in drawing up the courses of study. As a result there is a considerable quantity of useless and wasteful work. Even when the material is of a kind needed, the failure to build it into the pupil's fundamental experiences, brings much of the teaching to naught. It is feebly learned, loosely held in mind, and quickly forgotten. Also, much needed teaching is left out because of the work's not growing naturally out of fundamental realities.

2. Except for the teaching work of shop, sewing-room, kitchen, and commercial department, practically all the work of both elementary and high schools is of the preliminary pre-functional type. The purpose is to give pupils over-views of the general content of history, geography, grammar, physics, etc. This is very necessary, certainly, as part of the work; but the functional half to which this should lead is mostly omitted. The preliminary, too, is over-systematized, over-abstract, too technical, the work too slow and intensive for this stage of progress. In other words, there is too much time given to work of the preliminary level, and much of it is done in a manner unsuitable to this level, and the larger portion of the functional training lost sight of.

Where inefficiency is found in the schools of San Antonio, it can usually be traced to one or the other of these two errors.

Chapter III.

EDUCATION FOR VOCATION.

Most of the 22,000 children of school age in San Antonio will in time be obliged to earn their living. The school should therefore deal with every pupil on the theory that he will be obliged to earn his living. Since one's work is as important as any other function that one will ever perform, if public money is to be expended for education at all, this should doubtless have a share proportionate to its value. A city should expect full returns for this investment through the increased productiveness of labor efficiency.

We cannot know what vocation any given child will follow; but we do know that the labors which are done today must be done tomorrow. The vocational distribution of the present adult population shows the approximate distribution of the population ten or twenty years hence, when the pupils now in school shall have taken up their adult responsibilities. However much parents may wish their sons to take professional or managerial courses, as a matter of fact there can be no greater proportion of lawyers, doctors, journalists, or engineers, in the next generation than there are in this. There must in fact be just as great a proportion as now of plumbers, carpenters, mechanics, mercantile employees, railroad men, factory operatives, etc. While it is the school's duty to help those who are to enter professional and managerial callings as fully as possible, it is none the less the duty of the school to provide equally for effective training for those who enter every other useful calling. Since comparatively few students will ever enter the professions, the chief vocational responsibility of the schools lies in helping those who are to enter agriculture, manufacture, mechanical trades, commerce, transportation, public service, mining and clerical occupations.

The vocational distribution of the men in San Antonio as shown by the occupational census of 1910 is shown in Table

II. The figures denote the number of men per thousand who were gainfully employed in each of the various occupations listed in the schedule.

Table II.

Vocational Distribution of Each 1000 Men Employed in Gainful Occupations in San Antonio.

	San Antonio	Average of Cities
Manufacturing and Mechanical Industry	336	473
Trade	226	175
Transportation	129	119
Domestic and Personal Service	120	69
Clerical Occupations	69	82
Professional Service	56	43
Agriculture, Gardening	32	10
Public Service	28	23
Extraction of Minerals	4	6
Total	1000	1000

If all of the new generation remains in San Antonio the boys now growing up would have to distribute themselves among the various occupational groups about as shown by the figures. Some of these groups will probably grow in the relative numbers of workers, while others may decline somewhat. On the whole, however, the figures of today show about what conditions must be twenty years hence when the present generation of boys shall have taken their place in the world of adult affairs. If all of the boys remain in San Antonio the list shows the things in which vocational education is most needed. The second and third columns show that whether they go to other cities or remain, about the same things are needed. The table does not consider the case of those who go to the farm. Doubtless in a country where agriculture is and probably will be the chief industry, many of the boys will go to the farms. This should be studied, but at present we have no figures bearing upon the matter.

Whether a young man growing up in San Antonio remains in the city or goes to another city the chances are about 34 in a hundred that he will enter some manufacturing or mechanical pursuit; about 20 in a hundred that he will enter trade; about 12 in a hundred that he will be engaged in the transportation of persons or commodities; about 10 in a hundred that he will perform domestic or personal service; about 7 chances in a hundred that he will do clerical work; about 6 chances that he will enter one of the professions; 3 chances that he will reside in the city and carry on agriculture or gardening work; and about 3 chances in a hundred that he will be engaged in public service.

The figures can be made still more concrete. The number of boys leaving public schools each year at all levels is at the present time in the neighborhood of 1000. Of these 1000 San Antonio boys leaving each year, about 80 will become salesmen or helpers in stores; about 70 will become wholesale or retail dealers; 50 or 60 will become teamsters or deliverymen; 60 others will work on the street and steam railroads; another 60 still will engage in carpentry, cabinet-making, and other wood-working industries; about 35 will become agents of one kind or another; 30 or 35 will enter industries involving work with iron and steel; 25 or 30 will carry on agriculture or gardening; 15 or 20 will become painters, glaziers, or varnishers; an equal number will become bookkeepers and accountants; and about the same number, builders and contractors. Here we have a rather long list of occupations into which the number of boys entering each year is sufficiently large to warrant the formation of vocational classes of a rather specialized sort. The number going into each other important vocational field can be read in Table III.

Table III.

Number Males per 1000 Employed in Each Important Vocational Field in San Antonio, and in Texas Cities in General.
Occupational Census of 1910.

	San Antonio	Texas Cities	Cities in General
Salesmen and helpers in stores	85	80	66
Wholesale and retail dealers	71	67	55
Servants, waiters, porters	61	58	27
Teamsters, deliverymen, livery stables	60	54	40
Steam and Street R. R. employees	59	73	55
Wood-working industries (skilled and semi-skilled)	59	53	54
Agents, real estate, insurance, etc.	39	34	18
Iron and Steel industries (skilled and semi-skilled)	31	35	83
Clerks (excepting clerks in stores)	26	43	31
Agriculture and gardening	31	18	13
Painters, glaziers, varnishers	18	15	16
Bookkeepers and accountants	18	25	17
Builders and contractors	16	13	10
Manufacturing officials and overseers	16	18	30
Barbers	11	11	8
Printing industry	10	12	15
Express, post, telegraph, telephone	10	13	8
Lawyers	9	9	6
Clothing industries	9	8	9
Stationary engineers and firemen	8	11	17
Plumbers, gas and steam fitters	8	7	10
Hotel, restaurant, boarding-house keepers	8	8	6
Police, watchmen, detectives, etc.	8	8	9
Brick and stone masons	8	7	9
Physicians and surgeons	7	8	6
Electricians	7	7	7
Leather industries	7	6	16

Janitors and sextons	5	5	5
Stenographers and typewriters	5	7	3
Metal workers (other than iron and steel)	5	6	10
Laundry workers	5	5	4
Musicians and music teachers	5	4	3
Clay, glass, and cement workers	4	4	8
Civil and mining engineers	4	5	3
Teachers	4	4	3
Clergymen	4	5	4
Fire department employees	3	4	3
Editors, reporters, authors	2	2	2
Dentists	2	2	2
Draftsmen and designers	1	1	3
Mechanical engineers	1	1	1
Unskilled labor, and scattering	230	244	263

Enough boys leave each year who are to enter printing industry to warrant the introduction of this training into the schools. It would more than pay for itself. It will be noted that the number of boys entering clothing industries each year is fairly large. This would indicate that perhaps some scholastic training is needed by boys as well as by the girls. Only nine of the boys leaving school each year, out of the thousand from all grades, will become lawyers. Only seven will become physicians. Only four will become teachers; an equal number cleryymen. Only two will become editors, reporters or authors. Only two will become dentists. Only one a draftsman; and one a mechanical engineer. The figures show clearly that the vocations for which training is needed by the large numbers are not the professional. Into the professions only about five percent of the men go.

Table IV shows the number of women, ten years and over who were employed in certain gainful occupations in 1910. These figures also refer to the number of women per thousand employed. They refer only to women employed in gainful occupations, and do not include women employed in their own homes where no remuneration is paid.

Table IV.

The Number of Women 10 Years of Age and Over Employed
in Certain Gainful Occupations per 1000 Employed.
Census of 1910.

	San Antonio	Texas Cities	Cities in General
Servants, cooks, waitresses	242	247	202
Laundresses, etc.	215	247	93
Clothing industries	113	99	128
Saleswomen	71	61	61
Teachers	54	49	52
Boarding house, hotel, restaurant	54	53	29
Nurses and midwives	40	37	34
Stenographers and typewriters	35	51	47
Bookkeepers and accountants	23	20	31
Employed housekeepers	14	13	20
Musicians and music teachers	14	12	13
Retail dealers	13	9	12
Telephone, etc	12	19	18
Food manufacturing industries	11	8	17
Clerks (excepting clerks in stores)	9	12	17
Manicurists, hairdressers, etc.	6	5	5
Printing industries	5	5	6

About one-tenth of the population of San Antonio is Negro. The census bureau does not furnish separate figures for San Antonio. A few of the occupations listed in the tables are entered largely by negroes. Most of them, however, are recruited from those who pass through the white schools.

THE FACTORS OF VOCATIONAL EFFICIENCY.

The first question that arises is, What does one need in order to be efficient in one's calling? This answered we can mention the training needed, and judge of the effectiveness of the work now being done. There are a number of things of which we can be fairly certain:

I. One needs to know the nature of the factors that enter into one's work, know how to control each of them, and to have the necessary skill for such control. In other words, one needs to know the technical science concerned in one's labors; to know how to make practical application of this technical science to one's every-day problems; and to be skillful in doing each kind of task of which the work is made up. Illustrations of these things will be given when we come to discuss the work of training for garden and kitchen, for shop and sewing-room, etc.

II. A man needs to understand the work that is being done by his co-workers in the same general field,—in the same factory, the same store, the same railroad organization, etc. The work of each man must fit into the large general scheme, along with the work of each other man. This is needed for purposes of efficient industrial co-operation. For vocational stimulation, a man needs also to be conscious of the fact that his own work is well-known and understood by each of the other workers of his vocational group; that they are in a position to appreciate superior work on his part; and that they are equally in a position to condemn inferior work. Such mutual understanding is one of the large purposes of systematic vocational training. It is generally accomplished during the learning period by putting the man to work at first one and then another of all of the various kinds of tasks performed within the establishment; and of giving him the necessary technical science concerned in the performance of each of these various types of labor.

III. The worker needs to understand the points of view, the standards of judgment, the rights, responsibilities, etc., of the management. On the other hand, he needs to know that the managers thoroughly understand the nature of the work that he is doing, the conditions under which the work is being done, his duties, responsibilities, and rights. This is only a wider extension of the matter referred to in the previous paragraph. Management and men are engaged in carrying through a single series of labors. The efficiency of either is dependent upon the efficiency of the other; and it is dependent upon mutual co-operation. This can be based only upon mutual understanding.

This third necessity of vocational efficiency is not everywhere recognized; but it is being shown clearly in the recent testimony before our U. S. Industrial Commission. One of our great captains of industry, testifying before this Commission a few weeks ago said:

“I favor the democratization of industry absolutely, and whatever intelligent legislation may be directed to that end. The industrial worker does not want merely an increase in wages. He wants something more—something higher And he will get these things. He should have them. But legislation cannot accomplish all this alone. There must be co-operation of the employer, the employed, and the public-spirited citizen”

There can, however, be no efficient and genuine co-operation except as it is based upon intelligence and full mutual understanding. In a later section we shall point out what history, geography, general reading, civics, etc., ought to be taught by way of taking care of this great national vocational need; and how these subjects now fall short of their high mission because of their dealing so much of the time with mere erudition and pedantic trivialities.

IV. A worker should know the **community needs** as related to the labors of his calling. He should be conscious of the fact that the community in general knows the nature of his rights, duties, and responsibilities; that his work is not unrecognized; that they are willing to reward him for efficient service, and to withhold reward for ineffecient service. Each vocational group is turning out some necessary commodity used by all of the other groups, and in turn all of the other social groups are turning out commodities that are used by him. Just as the men within a factory need to understand each other as the basis of co-operation, so within society as a whole, the various vocational groups need to recognize the ways in which each group supports the labors of each other group, and thus through effectively serving others most effectively serves itself. The need

of this wide vocational enlightenment has not been very fully recognized. Most education is only dimly conscious of the need. Many facts relating to these wider relations are taught in our histories and our geographies, but they are generally badly taught because schools have not clearly defined the purposes for which taught. These subjects, however, together with civics, economics, and perhaps a portion of literature, should be organized and developed so as to serve this fourth highly necessary purpose.

V. Before there can be permanent vocational efficiency within a man, he must possess high standards of living so as to **want** to succeed in full measure and upon a high social level. The man who wants little will do little. The man who wants much will do much. One who wants little will be satisfied with things that are meager in quantity, cheap in quality, and inexpensive in money and labor. The man of high standards of living who wants much is never satisfied with meager quantity, nor cheap quality; and the things cannot be had inexpensively. He must think and think hard; he must work and work hard, in order to get the things that he wants. High appreciation, high desires and ambitions, high standards of living are therefore the most powerful motive forces for driving men to becoming efficient, forceful thinkers and workers in any occupational field. Whatever the school can do that will raise standards of appreciation and standards of living will act indirectly in producing vocational efficiency. Although the action is indirect, it is fundamental.

When these five things can be fully developed within the people of a community, they will be fully trained for their various callings. Whatever training will promote one or another of these five things is justifiable educational work. If it is already in the curriculum, it should be kept there, expanded, and perfected. If anything can be found which will promote one or another of these things which is not already in the curriculum it should be placed there. Anything which is now in the course of study for vocational purposes, but which cannot be seen to serve in any one of these five ways, should be excluded

from the course of study. These principles of judgment and selection are general and can be applied continuously by teachers and supervisors. The applications made in this chapter to the work in San Antonio are to be looked upon only as illustrations of the work to be done.

The fundamental aspect of the training of children and youth along each of these five lines takes place in the home, on the street, in one's play activities, one's observations, and participation in the human activities that surround one within the community. During earlier conditions in this country all of this portion of one's vocational education was accomplished with very little scholastic help. Labor was simple rule-of-thumb. Technical science had not been greatly applied. The processes were easily observed, since they were not greatly complicated. The apprentice could learn as much as the master through mere participation and observation. The fundamental out-of-school aspects of education were then sufficient for all practical purposes. There appeared to be no scholastic supplementary training needed. At the present time, however, processes have grown highly complex; and in certain callings at least, a very great amount of technical information is needed for success. This cannot be learned through mere looking on, or even by working as an apprentice. The processes are too complicated, and the science is hidden in the minds of the workmen. Moreover, as organizations have grown nation-wide, the understanding and the control of the social relations referred to especially in the third and fourth factors enumerated above have become endlessly complicated. At the same time, the need of an understanding of these social relations has been greatly increased. The fundamental understanding of social relations got through community contacts must be very greatly supplemented and completed and filled out by the schools, in order that men who live within narrow communities may be brought to understand the large nation-wide industrial and economic movements.

The fundamental vocational training must still be accomplished outside of the school just as fully as ever; or by transferring a portion of these fundamental labors to the school for

educational purposes because of the difficulty of access to them in the community. The more the work can be accomplished under the real conditions of the practical world, rather than under school conditions, the better the work will be, all things else being equal. Under present conditions the more the fundamental activities have to be transferred to the school for teaching purposes, the poorer the work is likely to be. It is at present so very difficult to develop an actual vocational atmosphere within the school.

Before organizing vocational training within the schools on any level and for any one of the purposes above specified, teachers and community should search out the fundamental vocational influence with which the children are already in actual contact. These should be used as the foundation upon which all later building is accomplished. Generally they will have to be broadened and deepened so as to give a broad and secure foundation for the supplemental training of the schools. After they have been found, then the work of the class-room, shop, kitchen, garden, etc., should be built definitely upon these community foundations, rounding out and completing knowledge already possessed. This is the only way to keep the school work anchored to reality; the only way to be sure that it is useful and serviceable, and worth paying for.

VOCATIONAL TRAINING IN SAN ANTONIO.

In this field of training, in very many respects, San Antonio must be ranked among the more progressive cities of the country. In the variety of occupations already introduced in some degree, in the practical quality of the work, and even more in the general spirit and purposes actuating those in charge, the city has taken a very advanced position. The high school takes care of four years of commercial training. Shop-work is given to the boys in the two upper grades of the elementary schools and through the four years of the high school, covering carpentry, joinery, furniture-making, wood-turning, pattern-making, foundry practice, forging, machine shop work, and

mechanical drawing. In the vocational and Negro schools it is given in a larger amount of time and begins earlier in the grades. For the girls of the regular courses, sewing begins in the sixth grade and continues to the end of the high school; cooking is given to all grades beginning with the eighth. In the vocational and colored schools, sewing and cooking begin as early as the third and fourth grades. At the new Negro high school the city is introducing gardening, poultry raising, horticulture, floriculture, bench work with wood, iron work, forging, automobile operation and repair, cement construction, sewing, cooking, laundry work, manicuring and hair-dressing, and a course in cooking and catering for Negro boys. Not many of our progressive cities can provide a longer list.

We shall observe as we take up some of these matters one by one that much yet remains to be done by way of developing the work; but San Antonio is not alone in this respect. This is really the situation in every city where such work is being introduced. We shall have occasion to point out two or three principal kinds of defects in the present work. In the first place, it will be found that the work at the schools consists sometimes of little more than merely a transfer of fundamental community activities to the school premises. This is good certainly; and often altogether necessary, since if it is not transferred to the school, students have no way of getting into contact with it anywhere. But when so transferred it must not be left too fully upon the rule-of-thumb level of community work. The supplementary training portion should be fully developed;—the science, the drawing and design, the mathematics, the economics, and the studies of a social nature relating to each calling.

A second defect often to be pointed out will be the lack of normal basic foundations for the supplemental activities in the class-rooms. There is often too little related fundamental experience, either at home or at school; or it is a pretended, devitalized, artificial, make-believe, foundation for the vocational training.

A third kind of failure is the teaching of the supposedly technical information, mathematics, science, drawing and design,

together with social studies like history and geography, without any real or vital relation between these studies and the fundamental things of the vocational world to which they are supposed to refer.

COMMERCIAL AND CLERICAL TRAINING.

Courses having definite clerical and commercial reference are confined to the high school. There is one semester of commercial arithmetic, three of bookkeeping, two of stenography and typewriting, and one each of commercial geography and commercial law. The courses are in the hands of able teachers and are developing along thoroughly modern lines.

Three questions arise: (1) Are there any other subjects presumably of a technical or vocational nature that are required of these same students for graduation? (2) If so, are any of these presumably vocational matters unnecessary, irrelevant, and waste of time? (3) Are there other matters of a vocational nature not now included which ought to be incorporated into the course? In presenting partial answers to these questions in the following paragraphs, we are more interested in making clear the nature of the problems than we are in answering them. The real responsibility for the solutions rests upon the principal of the high school and the heads of the departments concerned.

Are there other subjects presumably vocational required of these commercial students? The high school course of study requires of them one and one-half years of algebra and one year of plane geometry. Presumably these are vocational studies. If one will refer back to the seven fields of human activity specified in Chapter II, it appears rather clear that neither algebra nor geometry can be of functional service in any of the other fields. So it must belong here, if anywhere. But clearly, neither study is of any vocational service to clerical or commercial people. No bookkeeper or stenographer, no buying or selling agent, no manager of a commercial house, ever has any need for either algebraic operations or geometrical demonstrations.

To force them upon commercial students with the plea that it will be of service is to obtain their time and labor upon false pretenses. To hoodwink a community into paying for such useless subjects is to obtain and to spend their money under false pretenses. The teaching of these useless subjects to commercial students is now costing the city several thousand dollars a year. The community would do better to save its money, and use it along useful lines that are not yet sufficiently developed. The chief loss is the loss of opportunity to the students because of this needless waste of their time.

Two years of science are also prescribed for commercial students. The science thus forced upon them seems in no wise designed to further their vocational labors. It is just as difficult to see how it is consciously designed to further any of their other activities,—a portion of the physiology excepted. It seems to be forced upon them not so much for their good as simply for filling out a four years' course. Such aimless prescription of work cannot be justified. There are too many things seriously needed by these students. They cannot afford to have their time wasted in ways that do not count. And a community ought not to pay hard-earned money for work unless it knows just how that work is to count, and whether it is to count in desirable ways. Such irresponsible work is now going on, however.

A further question is, What studies are left out of the training of commercial students that ought to be included in order to take care of the five aspects of vocational efficiency enumerated above? First, I would mention commercial history. Commercial geography is already included and this is so organized as to give a wide and very necessary survey of commercial relations throughout the world of the present time. Rightly to understand these relations, however, they should have historical background. For example, properly to understand the world's cotton industry in the various realms of production, manufacture, and commercial distribution, it is necessary not only to view the industry as it now exists in the United States, England, Germany, Egypt, India, Japan, etc., but also to under-

stand through history the nature of the social, industrial, and economic forces that have been at work bringing about the present world-situation in this industry. This is true of every other commercial and industrial situation treated in the commercial geographies. These two subjects fully developed in their economic aspects are particularly necessary for developing the third and fourth factors of vocational efficiency set down in our list.

For developing these same factors there ought also to be a full and concrete study of economics. We do not here refer to the abstract economics that is usually taught in our colleges, but rather to what might better in the high school be a large expansion of the economic side of the commercial geography and commercial history. The three things ought certainly to be taught together. The mode of organization is easy. Simply organize the industrial and commercial courses in the field **by situations**. That is to say, treat the cotton industry in all of its various aspects geographically, historically, economically. Treat the sugar industry in the same way. Then the steel industry; and so on through the entire list. We are not here referring to any pedantic scheme of so-called correlation. We simply refer to the necessity of finding the fundamental situation in the fields of practical commercial affairs and then in the schools of giving such technical and social information about each situation as any practical man needs to have. There is nothing abstruse about the plan. It is simply every-day common-sense. The two chief difficulties in the way of getting it properly done are: the traditional attitude of subject-teaching schoolmen, whether in city schools or colleges; and the text-book situation which at the present time so largely follows the dictates of these same subject-teaching schoolmen. It is not always possible therefore to find a study of the cotton industry, for example, or the sugar industry, or the lumber industry, which properly develops alongside each other in an organic way all the various lines of needed information. Generally it will be found divided up, a part of it in one book, and a part in another book. The situation is sufficiently irrational; but school people

for the present can organize materials in a syllabus, and furnish the reading in the library.

There is another aspect of this training for clerical and commercial occupations which is as yet insufficiently developed. There is not enough practical work, not enough actual contact with clerical and commercial realities on the part of the students. So far as I was able to observe, the drill work in the classes in typewriting, stenography, and bookkeeping, seems to be of commendable quality, so far as it can be made such by energetic teachers under conditions that are too exclusively scholastic. Students in these subjects remained at their practice labors after school was dismissed in greater numbers than any other class of students observed. They were trying strenuously to attain definite objective standards in the way of speed and accuracy. These standards were based upon the actual needs of the commercial world into which they wish to go in the near future. This is naturally one of the best possible modes of anchoring the practice work of the commercial course to the fundamental realities of the commercial world during the period of training. It is, however, insufficient. One's imagination is not a sufficient substitute for reality. High school commercial courses throughout the country are notoriously ineffective in developing that necessary feeling of responsibility that is an indispensable factor of vocational efficiency. For clerical or commercial people, it is worth as much as speed or accuracy on the typewriter. Schools are greatly deficient also in developing actual business points of view, standards of judgment, appreciation of commercial relations in the concrete, etc., etc. These are not things that can be adequately learned through telling or reading. They are not things in which students can be drilled in a class-room where commercial realities or clerical realities are non-existent. The responsibility, the judgment, and the other things are developed only by putting people into positions that demand responsibility, good judgment, etc. In other words, in the commercial education the work is a bit top-heavy on the side of the scholastic supplemental, and is lacking in ballast on the side of the community fundamental portion of the student's education.

How can the schools introduce more contact with fundamental community activities? Several things can be done. The school system is the largest single institution in the community; and it is the most complicated one. On the material side it has a plant in the care and equipment of which are involved many score separate items. As school work is developed in ways daily becoming more pressing, many other items will have to be included. Now, the efficiency in the management of the material aspect of the school plant involves necessarily much accurate bookkeeping and accounting. Our progressive cities at the present time are introducing what is called the Bureau of Investigation and Appraisal. The work of such a bureau must be based upon accurate accounting of very many kinds. The details of this work constitute a rather extensive series of complicated bookkeeping and accounting problems. San Antonio has a sufficient number for several score clerical students, for a portion of their practice work. Such work need not in any wise eliminate or curtail the drill work that is now done. It ought to stimulate it, and it ought to bring about the development of a number of things that cannot possibly be accomplished in an atmosphere of pure abstract drill work such as now obtains in altogether too great measure in the commercial training room, for the simple reason that nothing else has been found of a serious nature to do.

The clerical work referred to is what is coming to be termed in the educational world "part-time" work. Both business men and schoolmen in our more progressive cities nowadays are introducing part-time work along many lines. In San Antonio there are probably small commercial and manufacturing establishments in which the business is not large enough to warrant the employment of a stenographer, typewriter, or bookkeeper, but where there is a considerable amount of work to be done which the proprietor would gladly turn over to part-time student-workers if he could be assured of competent supervision and confidential relations—the latter a necessary part of vital training, which the purely gymnastic clerical class-room work wholly lacks. Business men are naturally suspicious of immature work-

ers of this type, at present, because of the general irresponsibility of students. They generally are irresponsible, chiefly because they have had no practice in bearing responsibility. Students, sixteen years of age and over, are in fact capable of bearing such responsibilities, when conditions permit this side of their training to be developed.

A third suggestion for fundamental part-time work is home-accounting. When done adequately this is anything but a small piece of work. It might be continuous for high school students throughout the entire high school course. It might be of large practical significance to those concerned. It is, however, a piece of work that cannot be transferred to the school. Like house-cleaning or home-gardening, it is a type of work that must be done wholly at home. The facts are of an intimate family nature that forbid their being taken away from the home. Here, as in many other things, we are coming to see that teachers must direct work where it can best be done, not where it best suits their personal convenience.

There are perhaps other fields in which part-time clerical and accounting work could be devised. The schools for purposes of civic education need to be in pretty close contact with the fundamental governmental activities of the community. Could part-time clerical work be arranged in connection with certain city offices, the work would be excellent for the clerical students on the side of both vocational and civic training. Through connecting it with a type of civic training later to be referred to, it might incidentally be salutary for city offices.

The fact that partially trained students are in need of checks and supervision can be made use of educationally in arranging any such system of training. When different sets of students do the same task independently, each serves as a check upon the accuracy of the work. Also, one set of students can be employed to inspect and check up the results of practical work done by other sets of students. To inspect work and do it effectively is sometimes as good training as to do the work itself; and it is a part of both clerical and commercial labors.

TRAINING FOR HOUSEHOLD OCCUPATIONS.

This field of vocational training has been better developed than any other within the system. It is rather more easily developed than any other because of the facility with which so large a part of the fundamental activities can be transferred to the school premises without loss of vocational atmosphere. All of the sewing can be transferred bodily. Some of the canning, preserving, jelly-making, will also transfer. Some of the baking would transfer if the school made up its mind to it. But even better than this, the whole student body finds itself at school as much in need of its noon-day meal as if at home; so that the luncheon problem will transfer itself wholly and bodily to the school in so far as the schools care to undertake it for training purposes. Where real work can be carried to the school in this fashion, the educational problems become relatively easy. House-cleaning, household decoration, the care and feeding of babies, etc., are matters that will not transfer in such simple fashion, and which require the school to go to the homes for finding the foundation activities for its technical scholastic labors.

Training is given at present in sewing of many kinds, both hand and machine, simple millinery, simple household decoration, plain cooking, invalid cooking, household sanitation, marketing, home nursing, care of children, etc. The list is unusually complete.

Since the practical labors of the household training are for perfecting the fundamental labors that the girls perform in their homes, and since the practical labors of home and school are integral portions of one educational task, two things are to be said: (1) The conditions of the practical school training should be considerably better in every possible way than those of the homes in general from which the children come; (2) The school conditions must not be made so different from those of the home that they are severed, one from the other, the methods taught in the school being impossible in the home because of differences of equipment, materials, etc.

The physical conditions provided by the school board in the recently equipped household training centers, pretty adequately meet these demands. The accommodations provided at the Highland Park School, at the Crockett, etc., are light, sanitary, well-arranged, orderly, well-equipped, and pleasing. The city is making very commendable physical provision for this highly necessary field of training. It is possible, however, to point out work observed that was being done under undesirable physical conditions; as for example, the sewing in the unnecessarily darkened room at the Brackenridge High School. When lighting standards for sewing rooms are so well known as at present, and when there are so many persons bearing responsibility for pointing out such a condition,—principal, superintendent of buildings, expert adviser of the board as to buildings, supervisor of sewing, teacher of sewing, school physician—it is but surprising that so exceptional a condition could be permitted to exist so long.

On the side of technical information for the girls in household occupation courses, what subjects are now taught that should be taught? What ones are not taught that should be taught? And what ones of ostensible vocational value are now required that are of insufficient vocational service to warrant their teaching? To begin with the first, quite a wide range of related technical science is now being developed. The most complete at present is that of household bacteriology which is given to all classes where cooking is taught. Others are the chemistry of foods, dietetics, hygiene as related to food, hygiene as related to dress, design as related to garment-making, physiology and hygiene as related to the care of children, household accounts, cost accounting in each of the fields of household activity, etc. These matters are all desirable. Most of them are in need of much further development than that now reached. Perhaps if we were to add the physics of the household, the list would be fairly complete in range. Most of these subjects are not well taught for the simple reason that the necessary facilities are not sufficiently provided; and where partially provided, are not turned toward the specific needs of household training.

For the elementary cooking, the necessary science is yet largely undeveloped. There is no course in elementary science in the elementary school, nor are the kitchens equipped for very much laboratory study of the scientific factors entering into the processes. In the Main Avenue High School two years of science are required of all of the girl students who desire to graduate. Many take physics or chemistry. The courses at present offered, however, have not been drawn up with a view to meeting the vocational needs of these girls,—nor for specifically meeting any other kind of vocational needs. These high school courses are offering supplementary training to girls without any particular consideration of whether it relates the fundamentals or not, a clear violation of the very first principle concerned in drawing up a science course for public education. Such required science courses of abstract irrelevant type are for high schools survivals of a form of science-teaching that is rapidly growing obsolete. Science for women should relate definitely to situations in which women actually find themselves. Naturally there should be science study of the preliminary over-view type; but it will be only introductory. The real work should come in connection with the practical situations. The high school science work for these girls now does give the preliminary over-view. But it does it badly because as introductory work it is so much overdone and uses such unsuitable methods and materials. And the broad range of functional science is pushed out and omitted altogether. A generous estimate will not allow more than fifty percent of the useful in such high school science teaching. The city is in all probability wasting half of the money that is now being spent on the teaching of this irrelevant introductory science to girls. And this at a time when there is a crying need in so many departments of woman's affairs for a fuller understanding of practical applied science. The loss of several thousand dollars annually expended for this fifty percent of wasted science-teaching is not the serious part of the matter. The serious thing is that girls can take so-called science courses without sufficiently acquiring the scientific attitude of mind and points of view with reference to the specific problems of

woman's complicated labors. The divorce of the technical and practical enfeebles both. The chief waste is the waste of opportunity.

The high school needs to furnish well-developed and well-organized courses for the girls in the physics of the household, the chemistry of the household, the bacteriology of the household, etc. The laboratories, the equipment, appliances, materials, etc., should be of a sort that is related to practical household situations. Household physics, for example, should deal with heat as related to the conductivity of different metals and other substances used in the utensils actually employed in the household, such as glass, porcelain, chinaware, earthenware, asbestos, wood, etc. The apparatus should be the utensils themselves. In the same manner it should deal with the mechanics of plumbing fixtures, window fixtures, ventilation, sewing machines, etc.; with the mechanics and the electricity of electric motors, electric irons, electric fans, toasters, electric bells, batteries, etc.; with color and color harmony as related to household decoration, garments, furniture, etc.; and so on through a long list of physical matters. In the same way the work of the home abounds with situations involving chemical relations, so that a very elaborate chemistry of household matters is possible and highly desirable. The same can be said for bacteriological study.

It is recommended that the science work required of the girls in the high school be thoroughly over-hauled, and reorganized so as to relate it as fully as possible to practical affairs. The preliminary introductory surveys of each science should be conducted in a manner appropriate to such pre-practical or preparatory science.

Another subject indispensable for the household arts is a fully developed course in drawing and design. There is drawing now in the manual training department for man's shop-labors. There is no special teacher of drawing and design at the present time giving corresponding work to the girls, although it is needed for woman's household labors as fully as for man's shop-work. At the present time the matters of design, color harmony, etc., are taken care of incidentally by the teachers of

household arts. The work requires a large amount of specialized training, and it requires certain specialized points of view. It would appear that there should be employed a teacher of art and design as these apply to the work of the girls, who would give time to the art side of the girls' work in the high school and through the elementary schools.

It is probably not desirable to have courses in general art and design in either elementary school or high school,—except of course for the preliminary aspects of the study. Beyond a little of this, to be introduced incidentally, all should probably be applied art and design. There should be art for the girls in connection with the making of garments, curtains, hangings, embroidery, work bags, satchels, home decoration, home furnishings, etc., etc. All of the general principles of design can be developed in connection with these special applications to this wide variety of work.

Primarily the teacher of art for the girls should know the fundamental nature of the household occupations. She should see her drawing and design not as a thing in itself, but only as an aspect of the fundamental labors and thinking of the girls in carrying forward the occupations of the homes, or the same occupations as they are specialized and commercialized outside the home. The art motive may well be strong. In fact it should be strong; but it should not be the dominant one. The latter place should be reserved for the vocational motive with art entering in only as the hand-maiden to labor. This is already the attitude of the department of household occupations. The art side simply needs the means of development. The women of the community should see that it is developed. The present art work of the schools is in serious need of development. It is especially needed in the high school.

There is a further question. Are any subjects required of the girls that are ostensibly for vocational purposes only, but which really are not worth the time, labor and cost? This is true of a good part of the applications of arithmetic in the elementary school. The textbook taught is unnecessarily full for the girls who are not going into commercial occupations. For

those who are going into these occupations and need the more specialized portions of the arithmetic, the subjects should be taught in the specialized commercial course of the high school. Certain portions of commercial arithmetic need not be forced upon all elementary school girls merely because some of them will later go into commercial labors. The city has already recognized the over-abundance of materials in the text and has already cut out matters like domestic exchange, foreign exchange, cube root, compound proportion, compound interest, annual interest, the introductory algebra work, etc. A committee of intelligent women of the community who are not teachers but who are familiar with the fundamentals of household occupations should be asked to go through the arithmetic text now taught in the upper grades and to point out the matters that have no sufficient connection with or relation to the labors that they perform and which could be omitted without loss from the work of the girls in their training for household occupations. The more such a committee of women could forget the arithmetical matters that they themselves studied in elementary school years ago, the better perhaps would be their judgments as to what is actually needed of an arithmetical sort for household occupations.

In the high school all of the girls who graduate are required to take one and one-half years of algebra and one year of demonstrational geometry. Such a requirement is absolutely inexcusable. The algebra is an absolute waste; the geometry is almost wholly waste. The form studies that the girls ought to have should be found in connection with their drawing and design and their construction work. The city is now paying several thousand dollars for the wasted teaching of a subject ostensibly vocational which can be of no value in their labors. The matter should be left to a responsible committee of lay-women to decide. Let the mothers of the girls who are going through the high school select such a committee. Let the members of the committee divest themselves of all academic preconceptions, and look at the situation through the eyes of straightforward common-sense.

The problem is one of large moment to the city: because of the money cost to taxpayers; because of the financial sacrifices of families to keep their daughters in the high school; because of the great amount of labor done by the hundreds of high school girls; because of the things of worth that have to be omitted to teach this algebra and geometry. Where so much is involved and where the waste is cumulative the city cannot afford not to investigate. The investigating committee should find out what the leaders of social thought and action through the United States think of the necessity of algebra and demonstrational geometry for girls and women. They should learn whether there is a tendency to omit these subjects, in forward-looking high schools, from the courses of the girls.

The girls need mathematics. They need to think mathematically accurately in matters of household accounting, buying problems as related to the grocery, the dry goods store, etc., rent, insurance, durability and depreciation, saving and waste, rational distribution of the family income as related to different standards of living, etc., etc. As we shall point out in the discussion on civic training, this newly developing type of education must include a large quantity of cost-accounting and mathematical economic study. To drop out mathematics useless to women will not really mean less mathematical thinking than in the past. It will mean time saved for a valuable kind of mathematics rather than a valueless kind. Certain of these necessary mathematical matters are now being developed along right lines by the household arts department in conjunction with the accounting division of the commercial department. This development should be pushed with vigor. All applied mathematics should be taught in the departments in which it is applied; and not be segregated in the mathematics department.

The girls in training for household arts should be given a large amount of social information pertaining to home activities and conditions. At the present time one of the books taken up for study relates to woman's share in primitive culture. This needs to be continued down through the historical period as well. Other matters studied relate to the cost of living and the

factors of control, to the social responsibilities of women in expending the family budget, the conditions of domestic service, social consideration of the various factors entering into household administration, etc., etc. The history, the civics, and the geography teachers of the high school seem oblivious of their opportunity just here. They have not seen that these subjects are valueless except as they are used to illumine, to help one to see in large social ways, the things of the practical every-day life of today. Much of the high school geography, physiography, as it is called, now given to the girls, is of about as much real value to them as would be the geology of the farther side of the moon. Of about equal value is much of the ancient and medieval history now given; and much of the antique civics.

These subjects need to be organized in ways discussed in later sections of this report. When so organized, they should include large quantities of information for the purpose of giving large historical, geographical and social background and perspective to the present-day situation of the household.

On the side of practical work, the sewing is well developed. The girls are making garments that are to be worn. On the side of cooking, the work needs development. They have less opportunity for cooking actual meals. The best place for the girls to put their domestic science information to practical service is in preparing the meals at their homes. The schools cannot count on their doing it, however, unless there is full co-operation with the homes, and supervision of some type. The school crediting of home-work is an entering wedge. Contact of domestic science teacher with the mothers at school meetings and in their homes is necessary also. **The supplementary information given in the school must be brought to function under normal conditions, or the education is not accomplished.** If not so applied the information is forgotten, and the work has been wasted. A community generally has too much faith in the schools' ability to educate under artificial isolated conditions. It simply cannot be done. It is but building on shifting sands.

In some part this problem will transfer to the schools. The penny luncheon or nickel luncheon now coming into elementary

schools may well be prepared by domestic science classes. Let the girls do the planning, the marketing, the cooking, the sewing, the collecting, etc., and the chain of real responsibilities will be fairly complete. The school kitchen will not then be a play-kitchen, but one of real work.

The high schools offer still better opportunities, and to the girls of a more responsible age. Both high schools must now and perhaps always must have their noonday luncheon at the school. At present it is but a hurried feeding time under highly undesirable conditions. At one of the high schools everything is purchased from itinerant street vendors or the little local shops along the street; and it is consumed mostly on the street and in the school-yard as the pupils return to the buildings. It has to be bolted because of the brevity of time. At the other high school, certain basement rooms are improvised for luncheon purposes; but no thought has been taken, it appears, on the part of the administration towards using the opportunity for educational purposes. It is sufficiently absurd for the high school to teach textbook dietetics at one hour in the day, and then violate every dictum of such dietetics at the luncheon hour. The domestic science people need to be put in charge of the preparation and the serving of the luncheon. The schools cannot afford to throw away such an excellent training opportunity. Naturally any excess purely routine labor might be done by hired help. But the head-work, so to speak, and the responsibility needs to be carried by the girls themselves for the sake of their education.

EDUCATION FOR MECHANICAL OCCUPATIONS.

Taking cities in general, more men are employed in mechanical occupations of one kind or another than in any other group. The proportion in San Antonio is not so large as in cities in general. It is, however, a class that will probably grow in numbers; and moreover, the boys of San Antonio in considerable number are sure to distribute themselves among many cities. The city is justified in laying large stress on training for mechanical labors.

In this department, as in those of commercial subjects and of household arts, the city has been fortunate in finding strong heads of departments who are able fully to take the practical vocational point of view. Teachers employed are generally those who have had practical trade experience. An excellent arrangement is found in the case of a certain teacher, who after teaching in the schools for nine months in the year, works at his trade during the three months of summer. Such a plan would be salutary for every teacher of vocational subjects.

The boys are generally found making things of use,—personal use or school use. One finds them making tables, chairs, office-desks, cabinets, porch swings, writing-desks, book-cases, piano benches, medicine cabinets, towel-racks, easels for relief maps, shoe-shine boxes, benches, etc. For the play-grounds the shops have constructed in certain cases giant-strides, horizontal bars, teeter-boards, flag staffs, basket-ball and volley-ball apparatus, together with tables and benches for the outdoor luncheons. Certain of the play-ground apparatus observed, as for example, that at School No. 2, possess a solidity and durability that is often lacking in the output of our commercial houses. At one of the schools, the students in the manual training shop were engaged in making an elaborate play-ground slide, ladder and all, of maple and ash. All this is real work under real shop conditions, since it is turning out a product that is to be of service.

A rather unusual form of training,—unusually superior I should say,—was found at two elementary schools. At each of these, the upper grade boys in the carpentry class had constructed a complete portable three-room cottage, of a type very much used in the neighborhood of the school. When the building is sold it will be moved away from the school premises and the next carpentry class will continue its training by constructing another. One of these cottages was thirty-three by sixteen feet in size, with three rooms, two porches, six windows, three doors, shingled, glazed, and painted. All the work was done by the grammar school grades. This is what we have termed the transfer of a real work situation to the school premises for training

purposes. When such a practical task can lie at the foundation of the architectural planning, the mechanical drawing, the studies of mechanical relations, etc., no better form of carpentry training can be devised. In such training, San Antonio has about reached the high water mark of excellence. Work of this same high type, lying close to the vocation itself needs also to be introduced into the two high school manual training courses, for those who wish to specialize in this general field.

On the basis of such practical foundation, what desirable studies of a technical nature are given? To begin with, there is a very fully developed course in mechanical drawing given in both of the high schools. It is very closely related with the work in the shops. During the past year mechanical drawing has been introduced into the seventh or highest grade in the elementary school, and is being developed in connection with the manual training work of the boys. This elementary course needs to be under the full control of the manual training department rather than a general elementary arts department. It is not art primarily, although the aesthetic considerations of design should enter fully. It is primarily a technical shop subject, needed for guidance of shop labors, and should not under any circumstances risk divorce from the shop by putting it in the hands of another department. For the girls of the seventh grade the work should be different from that of the boys and directed by the household arts department.

Other technical matters are mathematics and science. In the elementary grades most of the elementary science that should be taught has not yet been developed. It should be taken in hand, however. Perhaps most of the arithmetic needed by mechanics is given in the arithmetic course. In the high school the boys in training for mechanical occupations are compelled to take two and one-half years of algebra and demonstrational geometry, and two years of any science that they may happen to choose. There are no regulations that will keep them from choosing zoology and botany, neither of which can be of any particular vocational service. If they choose physics and chemistry, many things will be introduced that are of service; many

things, that can never be of any service; many things needed are not introduced; and all of it is given out of relation to the practical situations into which science enters. While all students should have general preliminary over-views in perhaps most or all of the usual high school sciences, when it comes to the detailed intensive work of the sort which one does when one gives a full year to a science, most of this should take a definite functional point of view. If we were to say that the science as now taught possesses fifty percent value for the boys in mechanical training, we should be perhaps sufficiently liberal in our estimate. The science work for these boys needs to be completely overhauled and reorganized.

On the side of the algebra and geometry for mechanics, something can be said; especially for the geometry. Most of the necessary geometric relations should be developed in the mechanical drawing classes rather than in the demonstrational geometry classes. After deducting this part it is probable that the high school mathematics as at present organized is, most of it, of relatively low value even for mechanics. If they reach that level of the work when they use handbooks, formulae, and need to make algebraic reductions of these formulae, then they need some algebra. All that they need, however, for this work can be taught in half a year. The other year represents waste, —unless they have decided to go on to a technological institution where the shop work will require a fuller knowledge of mathematics. For such relatively few individuals naturally the high school ought to give the preliminary portions of such higher mathematics. Because a few need a thing is no excuse for the city's forcing it upon all. To take an exactly parallel case, it would be pretty blind management that forced a full course in shorthand upon every student in the high school simply because a minor portion of them need it. For those boys whose education is ended at the high school stage, and who intend to enter mechanical industry, it is a perfectly safe estimate that the waste in the high school mathematics is not less than fifty percent.

Mathematics for mechanics, and science for mechanics, need to be developed in much the same way as the school has developed drawing and design for mechanics. In this connection there is a sound educational principle that needs to be stated: **The department which is responsible for the practical labors employed in vocational training should be responsible for the teaching of that mathematics, science, drawing and design, etc., that is concerned in the guidance of those labors.** In the ultimate vocational analysis it is the head-work that is more important than the hand-work. The vocational department should be responsible for the head-work of the vocation as well as the hand-work of the vocation. If delegated to general workers, it should be in the sense that there are certain teachers who do work for different vocational departments, but who while working for any particular department will take the point of view fully of that department. A teacher of mathematics, for example, might be sufficiently versatile to take the point of view of the commercial department while teaching commercial arithmetic to commercial students; to take the point of view of mechanics when teaching mathematics to prospective mechanical workers; to take the point of view of household workers when teaching the necessary mathematics to these; to take the civic point of view when teaching the mathematical and economic relationships of civic problems. The principle would apply in the same manner to the teaching of art and design, of science, and of social studies.

On the side of social studies in the training for mechanical vocations, the schools are doing practically nothing. The study of labor conditions as these are found distributed geographically over the surface of the globe, or as they have been historically developed during the past two or three centuries, is not given. There should be, however, a strong and fully developed course in Industrial History. The subject is very large, very interesting and highly profitable, in this age of industrial misunderstanding, when the workers need to know the basis of industrial democracy. There should also be an equally full course in industrial geography, showing the industrial stresses and strains

of the present. These two studies would necessarily include most of the industrial problems faced by workers in the field of mechanical industry, and faced by the community in general in the regulation of industry. Some of the things to be covered in such social vocational studies are: the development of mechanical inventions, the development of the factory system, the growth of corporations, labor organizations, industrial insurance, employer's liability, the relation of wages to production, etc. More specifically it should take up the growth of the manufacture of steel, of lumber, of furniture, the growth of railroads, railroad regulation, etc., etc. If the thing looks difficult as compared with the safe and lazy teaching of the labor struggles of ancient Rome between plebian and patrician, it is largely because we have not yet collected for our use, a proper body of informational materials to be used.

On the side of practical application certain further developments seem desirable. The carpentry classes might take care of certain portions of the building repair and building construction on the school grounds. The school board should never hire work done when it can be done by pupils in training for educational purposes. Repairs to buildings and equipment, for example, last year amounted to over \$20,000. In looking over the records of the superintendent of buildings and grounds, one finds such items as the following: New fence needed south of front yard. Calcimining needed in the north corridor. Black-boards need to be re-slatted. Walks are needed around the old building. Inside blinds in need of repair. Fence should be built upon the west side. Walls of class-rooms should be re-tinted. Desks and shades are in need of repair. Fences need to be re-set. Putting up new black-boards. Repairing plaster in Room No. 5. Fixing the cellar so water will not seep in. Re-varnishing the school seats and desks. Twelve yard fences are needed very much. Repair of window casings. Glass needed for windows and transoms. Need a ladder for trimming trees. Need a new and higher fence. Trees need trimming. Bat entrances should be stopped in both buildings. Fences need re-painting. Two new windows need to be opened in the small buildings. Doors

need repairing and re-painting. Screens are needed for the south rooms. Ward-robe door and Venetian blinds in need of repair. Need a map cabinet in the upper hall. A gate is needed to the boys yard. Repairs to curb and to the iron fence. Window cords need replacing. Doors needed for the toilet. All wooden buildings need painting. Latches and locks in all buildings need attention. Cement floors should be painted. Screens for toilets should be higher. Hallway floors should be re-laid. Porch needs to be re-built. Need new outbuilding. Double desks should be cut in two. Repair of teacher's desk and two chairs. Leaky window casings need attention. Tool sheds should be enlarged. Need 161 feet of new black-board. Steps need repair. New ceiling in cloak-rooms of old buildings. Picture moulding needed in the main building. Mouldings on black-boards need painting, etc., etc.

Out of so great wealth of opportunity, the shop department ought to be able to find certain things that can be done for training purposes. It must be kept in mind always, however, that the primary ends of using this fundamental practical labor is training,—training to understanding and appreciation of structural matters, more than training for skill. Such work cannot be educationally justified except as it is filled as full as possible with the intellectual and aesthetic content of mechanical drawing, structural science, structural art and design, structural mathematics, etc. The head-training, so to speak, must loom larger than the hand-training. The hand-training, however, is a necessary foundation for the head-training. The two must go together. Mind-training cannot be solidly accomplished except as one's feet are kept on the ground of practical reality.

Here again we must mention that labor organizations should very carefully consider the entire situation before making objection to valid educational policy. Understanding and appreciation of and desire for proper housing conditions constitute the source of prosperity to the building trades. So long as people are ignorant or unappreciative or satisfied with poor housing conditions, they will have little work to give to the building trades. When they have placed high their standards of housing condi-

tions, they will have much work to give to the building trades. In proportion as this appreciation exhibits itself in the building of a more attractive city, the more will San Antonio thrive as a city of homes, and the more will the building trades thrive. For building trades organizations to prohibit the training that will create a higher type of building demand for the sake of the more immediate profits is like killing the goose that laid the golden egg.

If it is objected that students cannot do good enough work, it must be observed that if their work is not good enough for the schools, then they are not sufficiently educated to turn out into the world of economic industry. Simply their education is incomplete. Responsibility rests on the schools to perfect it. And the having of such real work to do offers the best possible educational opportunity. The school city may also object that such work is slow. If well-done, it usually is. The city must exercise foresight, and plan a long way ahead. Educational opportunities must not be thrown away merely because it is easier to throw them away than to utilize them. Such action is an evasion of responsibility, and done merely because the work would be difficult. It is difficult, it is true. The world presents no tasks more difficult than those of real education. To direct a group of embryo workmen, using valuable material that must not be wasted, turning out a product that is to be permanent, intellectualizing all the processes as the work proceeds so as to build at the same time permanent educational structures within the boys, so to speak—all this constitutes a form of labor immensely more difficult than the labors of the usual construction foreman who is looking to but one-half as much product and is getting that half from men already trained. If the community is wise, however, it is not going to permit our profession to shirk responsibility merely because it is difficult. It will not permit us to palm off a combination of book-work and play-shop work as "just as good," when really it is an inferior and ineffective substitute.

GARDENING, AGRICULTURE, ETC.

Texas is and of necessity must always be primarily an agricultural state. The prosperity of the cities will always be dependent upon the prosperity of the agriculture of the region which they serve as distributing centers. A moderate fraction of San Antonio people at the present time are gardeners or agriculturists; and there must be another considerable number in the schools who will leave the city and enter into such occupations. For social or community co-operation between city and country, it is highly desirable that the inhabitants of the city in an agricultural region should have some appreciation and understanding of those labors and those conditions upon which they are ultimately dependent. A further reason for teaching gardening in the city schools is the fact that the City of San Antonio is and always ought to be, for obvious reasons, spread rather sparsely over the city area, with large intervening spaces given over to grass and trees and shrubbery.

City of homes is San Antonio; and upon its success in being an attractive city of homes must in large measure depend its future prosperity, with its delightful winter climate, its perennial green in garden and park, and with its never-ceasing breezes during the warmer months, the city is sure to be sought in ever-increasing numbers by a class of people of the type who now spend their winters and their years of retirement so fully in Florida and California. Success in this respect depends upon the city's presenting an attractive appearance throughout. Much of the city does not now present a face of this character, for the reason that the yards, the gardens, the vacant lots, the strips of green along the streets, the trees, the shrubbery, etc., have, over large areas, been neglected, and have been permitted to remain in an unsightly condition. In a city of such promise, in the case of things which could be so easily corrected, a vigorous campaign of education is needed. The results to the city cannot but pay for the expense many times over. Where nature is herself so bountiful and beneficent a relatively small amount of labor on man's part often brings forth results of an incomensurably large character.

The need of such a campaign is at present being voiced by the San Antonio Real Estate Exchange. The realty men have recently been discussing the organization of vacant-lot clubs such as are now found in numerous cities. There is no reason, they say, why San Antonio should not be the first Texas city to organize for a move of this kind. To quote from an article in one of the local papers:

"Minneapolis, Minn., is dotted with gardens until the vegetable peddler is finding it difficult to stay in business. Long stretches of vacant property, high in grass and weeds and littered with tin cans, rusty stove-pipes and general refuse of the neighborhood, are not in evidence there. The city authorities are behind the movement for gardens. Minneapolis is rapidly being transformed into a city of flowers.

"San Antonio has many advantages over Minneapolis. Mild climate here makes flowers and shrubs flourish nearly the year round. One rule of the vacant lot club is that the first four or five feet of a lot be planted in flowers or shrubs. Beyond that practically anything can be grown in the way of vegetables, etc."

"The importance of the garden in the income of the family is great," said government expert Hand. "There is no investment of the same time and labor which will pay greater cash dividends than the home garden, and every family can have one. The returns in better health, in outdoor exercise in man's most ancient employment and from a food supply made better by the addition of the right vegetables are in addition to a considerable monthly saving of family expense."

The Secretary of the Texas Industrial Congress in a letter to the San Antonio Real Estate Exchange announces:

"It is our intention to offer approximately \$500 in cash prizes for the best results in school gardening, and the same amount for results by individuals. Contestants will probably be required to cultivate not less than three vegetables; though they may cultivate as many more as they desire. There will

be no restrictions as to the size of the garden plots. This will enable boys and girls to make use of back yards no matter how small, as well as of vacant lots.

"It is hoped that the schools generally will take an active part in this work, and that each one will make an entry in the school garden contest. Then we want if possible to have the pupils in these schools make individual entries of home gardens of their own, so they may make practical application of the information and lessons in gardening learned at school. Supervision and inspection of the work done will be had as far as possible through teachers and school superintendents."

Experience teaches that the fundamental gardening work needed for training does not transfer easily to the school premises. The school-garden is not usually very successful. Generally there is too little space for individual gardens that are large enough for the pupils to take seriously. In the spring they are too much like play-gardens; during the summer they grow up with weeds; and the work too often comes to naught. They are necessarily more or less exposed; and when the work is well done and they are successful, they are so often ravaged by vandals, which destroys the pupil's interest. The school garden probably has a place only for demonstration and laboratory purposes, except in so far as the gardening relates to the permanent decorative arrangements of the school grounds in the way of flowers and shrubbery. These latter naturally should be planned, planted and cared for by the children themselves for educational purposes. This opportunity should not be thrown away by giving it over to the janitor. Outside of this school landscape gardening which also should be used largely for demonstration purposes, perhaps only a very small school garden is needed.

The fundamental aspects of the garden training should be at the homes. There is plenty of space. San Antonio averages only five individuals to the acre. The city is not densely populated. Houses are well removed from each other, and back yards, side yards, front yards, sufficient for flowers, shrubbery

and vegetables are the rule everywhere. There is no lack of opportunity for training in gardening.

The plan of work to be pursued may well be something like the following: The schools should take up the task of landscape gardening for the school premises. The art, science, and physical training departments should lead in the work; the art department to take care of design and aesthetic effects; the science department to take care of the technical, plant-growth considerations; and the physical education department to see that the gardening does not encroach unduly upon the necessarily large play spaces of the school grounds and to see that the shrubbery and trees are not planted so as to obstruct the light of the windows. The schools would need to study and experiment as to the kinds of flowers and shrubbery and trees that can be profitably grown in San Antonio for the purpose. They should search everywhere through the flora of milder climates so as to formulate as long a list of possibilities as can be found. This is largely a matter for the science teachers. While this is being done the classes in the art department will be designing the aesthetic arrangements to be employed in the school grounds, —along the walks, in the corners of the yard, along the fences, arbors, trellises, hedges, etc. It is a rich field for the teaching of applied art. Finally the school will have a small kitchen garden in which will be raised as large a variety of vegetables as can profitably be grown in the San Antonio region. Both the landscape gardening and the kitchen garden will be taken care of co-operatively by the classes and not divided up into little individual portions as is so often the case with school gardens. The purpose of all of the school gardening is but to give the preliminary ideas and suggestions for the home gardening which is to constitute the real training in the matter. The school garden suggests what can be grown, what processes have to be performed, shows the best ways of doing the work, shows to all the pupils how difficulties are to be overcome, furnishes material for the laboratory work that needs to accompany the teaching of the gardening science, etc. In a word, the school garden is a small fraction of the fundamental field of gardening that

is transferred to the school to be used as a foundation for the supplemental training in the science, design, and other matters of technical information, which are then taken back to the home gardens for that serious application which alone accomplishes the education of the children. Their fundamental training must be in connection with these home gardens. The front and side yards will be given to grass, flowers, and shrubbery, ideas and methods having been contributed by the work at the school. In the back yard or in the vacant lots can be developed the fundamental training in kitchen gardening.

Not only would we urge the introduction of this form of training into San Antonio in very generous measure, but we are willing further to state that the city cannot afford not to develop such gardening. The prosperity of the city depends in larger measure than is the case with the majority of cities upon its development into a city of flowers and shrubbery, of pleasing homes and gardens, of pleasant avenues and parks and parkways. The properly guided labors of 10,000 school children can accomplish a great deal immediately on the side of home, street, and civic beautification. But even better than this, the training will develop an appreciation for civic beauty and an understanding of the problems entering into it; so that after the schools have turned out children so trained, for a decade or two the adult generation of the city will be filled with men and women who are appreciative of the possibilities of making San Antonio, and of keeping it, a garden city. So profuse must be the reward to the city for development of this field of educational activity that the city ought to be pretty generous in developing the gardening work of the schools. Special teachers should be employed who would be expected to be in charge of the work twelve months in the year, teaching at the schools for a portion of the time and keeping in contact with all of the home gardens of the pupils for another part of the time. Where the work is being wisely developed the immediate results are more than enough to pay all of the bills, not to mention the ultimate and abiding results for a city in having its population appreciative and intelligent in the matter.

In connection with the discussion of gardening teaching as a basis for city improvement one should also consider the desirability of introducing instruction in cement construction and of introducing such practical matters as the building of fences into the carpentry course of the elementary and high schools. The city cannot be highly attractive during the winter until it is possible to walk along the streets and to enter the dwellings, from almost anywhere without wading through mud of uncertain depth and of a rather remarkable tenacity. The general population appears to need some teaching as to the possibilities of brick, cement, and asphalt construction. Improvement can come only as appreciation and understanding are developed. It can come economically only as people are informed as to costs, materials, methods of work, which will mean the ability on the part of large numbers to build their own home walks of brick or cement. The schools need to understand the desirability of giving short intensive courses like cement construction using the opportunities at the school for building school walks or repairing walks for demonstration purposes in the way of materials, methods, etc., and then under the direction of the shop teacher, care being taken that no mistakes be made, nor material wasted, let the boy's education be continued in such home cement construction as happens to be needed. If labor unions will consider the matter in all of its bearings they will find that they have more to gain than to lose from such a policy. The amount that can be done for training purposes is necessarily relatively small. The development of an understanding and appreciation of such work in the community through education will create a much larger demand for such work on the part of the trades as more than to overbalance the amount that can be done for training purposes; and moreover, located as San Antonio is, increase in the city's attractiveness through improvement means city growth and increased labors for the trades organizations. Further, it is the sons of the tradesmen who will most benefit from this training.

Portions of San Antonio are not attractive because of the nature of the fences about the usually fairly generous home lots.

In most cases the fences about the schools are altogether unattractive in design and finish; and often are in a state of disreputable disrepair. In a reading of the minutes of the school board it was found that the board had taken the position in certain cases that the classes in carpentry in the school should undertake the repair of certain of the school fences. Looked at from every point of view the suggestion is a thoroughly sound one. In return for providing accommodations, equipment, tools, teachers, etc., for training in carpentry, the board should require that the classes in this subject should take care of as much of the carpentry repair work on fences and buildings as can be done for training purposes. The art department in connection with the mechanical drawing department should take the matter of fence design in hand. The possibilities on the side of attractive design are very numerous. As a field of practical training relating to the aesthetic aspects of construction work, it offers large opportunities to a well-informed art department. After the designs are made, the shop department should take up the work of carrying out the labors on the side of cement foundations, cement posts, the metal work, the woodwork, the finishing, the painting, etc. This work done at the schools should be, however, regarded simply as a small piece of the large fundamental training opportunity that has been transferred to the school premises for educational purposes. It is the home fence building, fence repair, etc., that should, so far as possible, be looked upon as constituting the basic portion of the training. The shop teachers need, therefore, to be employed for the twelve months in the year and to keep in constant contact with the home training labors, in this as in other fields.

Of practical matters, there is just one other thing that we would recommend developing in the shops of San Antonio as early as conditions will permit, namely, printing. It is a manual training activity valuable for both boys and girls. It represents a trade field entered by both men and women. It is a fundamental activity that provides a foundation for a large amount of technical training,—drawing and design, color relations, mathematical computations, practical commercial activi-

ties, composition as related to the school paper, etc. The work can be made to pay fully for itself. The press, for example, can print arithmetic drill lesson papers, sentences for grammatical analysis, special reading exercises used in the primary grades, outlines of work for history, geography, science, etc.; manuals, recipes, etc., for shop kitchen and sewing room; invitations and programs relating to social functions, etc.

Where are the schools to find time for all this expansion of training both technical and social. It is to be had by eliminating present waste. In previous paragraphs we have eluded to waste in the teaching of certain portions of mathematics, science, and social studies. In later chapters we shall point to the desirability of eliminating certain wastes on the side of English grammar, foreign languages, history and literature. It must be remembered too that in proportion as education is made active, it can be made more effective. When fully organized, students can go over the ground more rapidly and the results once attained are relatively permanent, and less in need of reviews and drills and examination wastes. These are largely necessitated by the unrelated book teaching. Also waste due to the short school day and the short school week in the upper grades and high school can be utilized when work can be made less sedentary and therefore healthy and stimulating, socially and physically. There are serious problems involved in the introduction of such training; but the question of finding the time is not one of these.

Chapter IV.

EDUCATION FOR CITIZENSHIP.

Reading, writing, arithmetic, and the preliminary understanding of geography and history are necessary in every department of human affairs, citizenship among the rest. So far as San Antonio is taking care of these primordial systems of knowledge, she is taking care of the training for citizenship. For the moment, however, we take all these matters for granted. Our purpose here is to examine those elements of education that are chosen, or that should be chosen for the purpose of training one to the understanding of the problems, duties, rights, and responsibilities of the citizen.

The basic training for citizenship has always been through observation and participation. In the early days of our republic this was sufficiently simple. Wealth was not abundant. The citizens therefore were relatively equal in their political power. Communities were small. It was possible for everybody to be acquainted with what was going on in the community.

Public opinion and the simple governmental machinery of that day brought about a reasonable efficiency in governmental matters. Any wide-awake man or woman received most of the necessary civic training through active observation and participation in the general community affairs. There appeared to be nothing additional for the schools to do. For this very good reason little or nothing was done.

But today, civic conditions are changed. And the work of the schools must be correspondingly changed. At present, social competing interests are not bounded by the town limits. They are nation-wide. Their affairs are so ramifying and complex, information concerning social groups is so inaccessible, that the problems relating to the general control of our various social classes of greatly unequal powers are in fact our gravest national problems. In a democracy where the ultimate solution of all of these problems must grow naturally out of public enlightenment, there must first be public enlightenment. The task of the schools

is to take up our thousand problems one by one, and round out the information of our young citizens concerning each of them. Their fundamental education must still be through observation and participation in practical community affairs; but the schools must supplement heavily.

Here as in the vocational field, there can be no divorce between the practical fundamental portions of the training, and the scholastic, supplementary, theoretical portions. One learns civic and social co-operation through entering into those co-operations. One best develops the necessary knowledge, points of view, and standards of judgment as one needs to use this knowledge and this judgment.

The schools need to find as many practical civic things to do as they can. Then in connection with each of these, they should richly supplement with information and social inspiration from the fields of history, geography, economics, industrial studies, social studies, etc. The San Antonio schools provide a good illustration for the purpose. Some time ago a practical anti-mosquito campaign was undertaken by the community, enlisting the co-operation of the children of the various schools. Throughout the city the children undertook the tasks of clearing up the pools of water, of removing the tin cans from vacant lots, of burning weeds, of pouring kerosene upon standing water, screening cisterns, etc., etc. This elimination of the mosquito was undertaken as a general civic community task. Through participation in it, the children laid the fundamental foundations for education on this topic. Taking practical activities as the foundation for supplementary studies, the schools took up the science and the social aspects of the problem. In every school building at the present time, except those just recently finished, there is to be found a large wall chart in color devised and drawn by a student in the high school which shows in a clear magnified form the anatomical characteristics of the different harmful species of mosquito. It shows also the entire life-history of the mosquito, from the egg through each stage to the final adult form. The school library then contains further related science for the pupils, written in easy, readable form. This

science deals with the nature, life-history, and habits of mosquitoes; with the nature and life-history of the malarial germs; the way they are introduced into the system by the mosquitoes; the way they multiply; the way their multiplication in the blood affects the human organism; and the way in which these malarial germs in the blood are destroyed. The reading enters also into the geographical and seasonal distribution of mosquitoes, with modes of destruction, and methods of preventing their development.

The scholastic aspects of the training need to be carried beyond the technical, scientific considerations, to the social ones as well. In connection with this mosquito campaign, the class might well be provided with statistical facts concerning the prevalence of malaria furnished from records of health departments. Then, using outline maps of the United States, they might very profitably make what could be called a mosquito-malarial map of the United States similar in technique to the shaded rainfall maps found in the geographies. Such a map would show the regions of large danger and the regions of little danger. It would be a study not only of a certain civic problem, but would also be a rational mode of studying geography. Using an outline map of the world, it would be possible from figures at hand, to draw such a shaded map of the world, showing the regions of greatest danger for North Europeans, in the Amazon River valley, in central Africa, etc., and showing the regions of practically no danger in mountainous regions of high altitude and in the colder climates. From the facts at hand, an advanced high school class might also calculate the economic losses from morbidity and mortality in states in our country and perhaps in certain foreign countries, thus forcing home the economical relations of imperfect control of this particular community problem.

The social aspects of the study could not be complete until it had been looked at historically. Malaria-carrying mosquitoes have in fact played a large role in the history of human affairs. For example, in reading the northern invasions of Italy during Medieval and early Modern time the most striking single thing

discernable is the fact that no northern army reaching the Italian Campania ever returned home again. In the language of James Bryce, these armies melted away as certainly and as silently as the snows of the Appenines in summer.

The malaria-carrying mosquito did the work. In the same way can much of the history of southern climates in their relations with the people of the north be explained. Thus and thus only can we explain the uninhabitability for Europeans and the lack of development of central Africa and central South America. Written in proper human fashion, based upon a solid foundation of fundamental community activities, such social studies can be made intensely interesting and highly profitable.

This extended illustration is designed to show that in connection with the teaching of any civic topic there ought to be: first, a series of practical activities in which those being educated can participate; second, there should be a wealth of technical, scientific information relating to such practical social activities; and third, there should be an equal abundance of social information relating to the problem. The thing cannot be adequately taught if any one of the three factors is omitted. At present in San Antonio all three are mostly omitted. There is scarcely any civic teaching done.

Examples of civic topics that ought to be taken up in this threefold way in the schools of San Antonio are: City beautification; city street paving; street cleaning; the smoke nuisance; city water supply; city milk supply; the city food supply in general; fire losses and fire insurance rates; city parks; the economic value of birds; the sanitation of public buildings, schools, churches, theaters, etc.; vocational survey of the city; the care of the unfortunate; the public utilities of the city; uses of vacant lots; savings banks; child labor; municipal social centers; the municipal civic forum; cost of maintaining each city department; city dust; the municipal board of health; the possible civic uses of the San Antonio river; the civic problems of the school city, etc., etc. These are only suggestive of the kinds of problems that should be looked into. Committees of responsible men and women of San Antonio, both lay and pro-

fessional, should draw up a long list including all important social problems needed to be understood by the well-informed citizen of San Antonio. The community is paying the money to get the teaching done; the community should say, in as definite a way as it can, what it wants covered. It is scarcely fair to the schools to be set to the performance of a task and then not told what is wanted. The school people are paid to find out, one says. But suppose they do not? Are they to be permitted to go on just as if they had done so? Does not the responsibility fall upon their employers the moment the school people fail?

After a community committee has formulated a list of topics, it should aid the schools in every possible way to **get the facts** bearing on each of them. Mere talk by the teacher and pupils about street paving, or street maintenance without any facts beyond their casual observations may add nothing to what all really know in the beginning; and may be—usually is—a total waste of time and money. There is needed an abundance of technical facts relating to the situation. And the facts must be **significant**. To illustrate:

What has San Antonio been paying for the maintenance of streets? Is the amount large or small? For the fiscal year of 1912, the amount paid was ninety-nine cents per capita. This fact taken alone is meaningless. It does not show whether high or low; whether the city is doing well or ill by its streets. It can be given meaning by comparison, however. Table V shows the comparative cost per capita of street maintenance in southern cities:

Table V.

Annual Per Capita Expenditures for Street Maintenance, 1912.

Nashville	\$ 2.79	Augusta	\$ 2.76
Tampa	2.10	Memphis	2.04
Houston	2.04	Savannah	1.71
Atlanta	1.63	Dallas	1.55
Galveston	1.54	Jacksonville	1.53
Austin	1.51	New Orleans	1.50

Macon	1.43	Shreveport	1.36
Montgomery	1.36	Mobile	1.33
Ft. Worth	1.17	El Paso	1.10
Muskogee	1.07	Birmingham	1.02
SAN ANTONIO .....	.99	Charleston .....	.85
Little Rock .....	.63	Oklahoma City .....	.63

With the facts from this list of cities before a class, the ninety-nine cents per capita paid for street maintenance in San Antonio acquires significance. One can see how well the city is taking care of this function, as compared with Houston, Dallas, Galveston, Austin, Ft. Worth, El Paso, and other cities. Or, if one would look at it in another way, one can see the economy of San Antonio as compared with the wasteful extravagance of some of the other cities. Naturally the interpretation must square with the facts; **but there must first be facts** before there can be interpretation, explanation, or teaching.

A second civic question bearing on this topic, is: What is the price paid in each of these cities per thousand square feet for street paving of the type now going on in San Antonio? Is San Antonio paying a high price per thousand square feet, a medium price, or a low price, as compared with the practice in other cities? One cannot answer until one has the facts for San Antonio, and for each of many other cities. Real civics of any vital worth cannot be taught the youth of the city until such facts as these are accessible. With solid facts before one discussion and explanation of reasons and causes can be made profitable.

But **facts** cannot be merely gathered out of the air. Public spirited committees of citizens' organizations not only should draw up the list of things the people of the community need to understand, but they should actively assist in gathering the facts to be used. The adult citizens need the facts for their thinking as fully as the schools need them for their teaching. Public spirited men of the community can get great quantities of facts that are relatively inaccessible to the teachers.

Several kinds of things are now being done in San Antonio which appear to be designed for training for citizenship. Formal civics, so-called, is taught in the last half of the seventh grade. One class visited was reciting in a more or less lifeless uninterested way upon the textbook. They gave about three minutes to a discussion of the functions of the governor; then another three minutes to the lieutenant-governor; about the same length of time to the secretary of state; and so on through the list of comptroller, state treasurer, attorney-general, and superintendent of public instruction. It was not a discussion of these officials and their duties as they are found in the State of Texas, but a discussion of these officials in the abstract as they are found in states in general. The whole thing was covered in fourteen minutes. In the recitation the pupils did not get much of anything correct. The teacher then in each case lectured by way of giving the facts. She did nothing more than to cover the brief textbook facts. So far as the reading or discussion touched upon things which the pupils knew anything about at first hand, they seemed to be interested, and they seemed to have ideas; but most of the things covered did not relate to anything within their experience. After six more minutes given to a discussion of the judiciary, the class was dismissed. The whole thing was mostly a waste of time. The so-called facts of the recitation were not real facts for the students, since they had no real substance. The pupils get a necessary preliminary view of the governmental mechanism. This is good so far as it goes. But it is like a class in manual training that confines its term's work to merely examining the work bench and the tools. A necessary step, it is, but they must get much beyond a mere preliminary view of the mechanism.

Another class in civics was visited in the high school. It was using and reciting upon Fiske's Civil Government in the United States as a textbook. This text was first published twenty-five years ago. It represents an outworn and ancient mode of civic thought; and moreover, it never did apply in any sufficient measure to the civic problems in Texas, and almost not at all to the problems of the citizens of San Antonio. Fol-

lowing the ancient pattern, the students were discussing the vague abstractions there set down concerning the functions of the president. The things discussed were without substance, without significance, without relation to anything in their experience or that of the teacher of the class. They were discussing it and reciting upon it merely because it was set down in the book. It is pseudo-supplementary education that fails of its purpose because it is in no wise related to the fundamental situations in which the pupils move and think and act. It looks so much like real education that everybody seems to have accepted it as such. Let one compare it, however, with a course in civic training made up of civic problems of the type referred to in the illustration given above, one can then easily distinguish the false from the true. One wonders what supervisory officials are doing that they do not instantly detect and set about correcting such sham education.

Civic training in the schools can be healthy and virile only as it reflects things that are being striven for by the civic leaders of the community. The civic work within the schools should be a part, an integral, organic part, of the total civic striving of the community. In proportion as the school isolates itself from the community and finds mere textbook matters of study that are in no wise related to the conditions within the city, the school work drifts from its proper moorings and becomes useless. Only in proportion as it keeps its feet upon the solid earth of community problems, does it remain educationally worth while.

In addition to the ways mentioned, another method of keeping the school civic work grounded in reality is to make the schools, as fully as possible, the civic forums of the city,—especially the high school. For example, when the topic of street paving is being considered in the high school civics class, the chairman of the committee of the city council which has charge of this particular aspect of civics work should be invited to discuss the whole situation before the high school, meeting as a body in the auditorium. When the subject of taxes is taken up, the chairman of the finance committee of the city council, the

city tax collector, the county tax collector, the chairman of the finance committee of the school board, etc., should be invited to discuss the problems of taxation in San Antonio before the high school classes. When community sanitation is the topic, then it is the board of health and its inspectors who have an opportunity of disseminating necessary sanitary information. There is no civic function being performed but what is being trusted to somebody. Those to whom it is entrusted are the ones who in a democracy should feel responsible for keeping the general public enlightened as to their work. It is necessary for their own effectiveness, and for the success of their labors in the community.

The plan as sketched in the preceding paragraph is incomplete, imperfect, and unworkable. If undertaken in a period of zeal, while it may be continued for a while, it probably cannot in any such form become permanent. The officials referred to under present conditions, will not and perhaps cannot take the matter sufficiently seriously. It may be done once in such a manner; but there is likely to be little thought of the continuance of the matter year after year, as a regular portion of the duties of the office. There is a feeling of the artificiality and the insubstantiability of the thing. This is because of the relative artificiality and isolation of school activities as at present conducted. Present teaching is so much in a vacuum that live men cannot seem to breathe naturally in any such atmosphere. The information that these men have should be for the whole community. Yet here within the school we have separated out only the children and youth of the community. Those to whom they should give it naturally and normally as a part of their serious functions, namely the adult leaders of the community, are not present at the school when these talks are made. These officials are not reporting to the men who are holding them responsible, but are reporting only to the children in a comparatively artificial situation. Now as a matter of fact these officials referred to cannot talk to the youth of the city in normal fashion if they are talking only to the youth of the city. They can talk normally to the youth of the city only as they are addressing the adult leaders of the city, their peers, those to whom they owe their responsibil-

ity. Then as they talk to this adult portion of the community the children can hear and in this way can learn in a normal fashion. Youth must learn in large measure not from being addressed directly, but from listening to adulthood talking to adulthood. It is for youth one of the normal modes of participation in adult affairs.

This being the case, civic education demands that there be meetings of adults where the youth of the city can attend, which are being addressed by the members of the board of health, the chairman of the council committees, the officials of the county and city, the leaders of every civic movement within the community, etc. The high school and every school is in need of an auditorium large enough to seat at one time a large part of the school and a large part of the community. Here should meet regularly City Improvement Associations, Civic Leagues, Parent's Organizations, etc., to be addressed by leaders of community labors. The children and youth should then attend and listen to these discussions in as full a degree as possible as a part of their necessary education.

Auditoriums for such purposes cost money. But they can be paid for out of the savings to the city that can come from such civic enlightenment.

When the things above recommended are accomplished, the fundamental civic activities of the community will have been brought into such close relation with the necessary scholastic activities that the latter cannot well drift from their moorings into mere irrelevancy and abstract nothingness. The debating societies will have something to debate that will be taken seriously and serve as the centers for the organization of large masses of technical, economical, historical, and geographical facts. The public speaking work can be given vitality by giving it serious aims. The composition classes can deal with the solid realities of the real world and less with the mere imaginative trifles. The comparisons of city with city, of state with state, that will be made necessary by such work will give the geography a vitality that at present it does not possess. And the history in showing how these various problems have grown up in San

Antonio, in Texas, in other states, in other countries, in other ages of the world, and how they have been solved under different conditions,—the history can be given vitality by giving it a useful work to do. At present so much of the history and geography hangs limp and loose and worthless merely because it consists of tissues of academic abstractions, related to nothing in man's present world.

Mathematics too, can be given vitality. Economics is a branch of applied mathematics; and in so far as civic problems are developed fully, they must be developed on their economic side. The street maintenance illustration shows that the basis of facts required for understanding must be of a mathematical sort. The same is equally true of taxation, insurance, management of public utilities, and of every other civic topic that may be studied. Civic teaching on its economic side must be as mathematical a study as engineering; though the mathematics will be only applied arithmetic. The quantity that is needed is large.

The science work also, both in elementary and secondary schools can be vitalized. The anti-mosquito campaign referred to is a fair example. There is no better possible way of teaching the biological science relating to mosquitoes and to malarial germs, their life-histories, their relations to disease, and their other scientific relations. In the same way there is a great wealth of science necessary to a proper understanding of tree planting and tree care as an aspect of city beautification, of the city milk supply, the city water supply, the economic value of birds, the sanitation of public buildings, the disposal of garbage, city dust, etc., etc. When one views the wide range of science which people need to know in order to understand their actual problems, the tragic waste of opportunity represented by the present abstract science of the high school appears. We are not here denying the necessity for certain preliminary study of physics and chemistry, botany and zoology, physiography and physiology, etc., by way of sketching the outlines of science needed as keys to interpretation of specific situations. We are saying that there is altogether too much time given to this preliminary study of these various abstract sciences, and practically

a total neglect of the science that lies about one in concrete form on every hand. The facts that enter into these concrete situations near at hand are just as scientific, just as real, and of incalculably greater value to the people of the city. In my opinion, the tax-payers of the city should refuse to pay their money for science that cannot be demonstrated to be related to problems of men as these are found in the practical situations in which people find themselves; and they should insist that all that is needed should be taught. This would not mean less science than is now taught; it would mean more. It would not mean merely local science. The need of comparisons with conditions in other cities and countries, keeps the wide outlook. It would mean, however, that it would have to be anchored to and grow out of local needs before it could be justified.

The educational problems here suggested are many and large. The educational responsibility, however, cannot be shifted merely because the problems represent work. They are at the present time being attacked and being solved in many cities. They are not things that can be solved by theorists. Nor can they be solved by one city and borrowed by another. Each city has its own peculiar set of problems, and the responsibility lies on the people of each city, both lay and professional, to work out the problems involved. It will require years. It must be a process of growth. Such problems should be introduced at once as can be introduced. Others should be added as it becomes possible. The studies will not be revolutionized in any sudden way; but only changed gradually. The science work will be changed here and there so as to relate it more and more to the actual problems of the city. The historical materials will be chosen more and more for the purpose of showing the social background of present-day social problems. The geographical materials will be chosen more and more for similar purposes. The things of history and geography and other studies that are of only preliminary value or which are of no value, will be given less and less time and will be gradually pushed into positions commensurate with their worth. Such a gradual reformulation of the work is the only kind of reformulation that can be healthy and that

can be permanent. An attempt to make changes too suddenly or changes of too great degree must necessarily result in a greater or less degree of demoralization. The rate of growth must depend in chief degree upon the width and strength of professional and social vision on the part of the supervisory workers in the school system; superintendent, high school principal, elementary school principals and head of the department of civics; and also upon the width of social vision of the lay leaders of the community.

Recognition of the needs of relating the teaching of the schools to outside social matters is indicated most clearly in the use of Current Events. In the beginning of several history and civics recitations visited, a few minutes were given to the presentation of two or three topics of current interest, the facts being taken from current newspapers. This work represents a very healthy development. The facts are chosen at random, however. They lack sequence; they are not connected up to problems that are being studied intensively by the class. They are mere extras, in no wise related to the rest of the recitation. For effectiveness the classes need to have such a long list of civic topics for perennial study as we have mentioned. Then current events can be brought to bear upon topics which have been studied and which are occasionally taken up for such further elucidation. When this is done, each current event reported by the daily press has significance, and its importance can be rightly valued. Such accretion to the body of thought systematically developed in the civics classes should be constant and should in fact constitute a continuous review of the various topics that have been covered. It is the normal method of intellectual digestion and assimilation. It is the normal method of review.

Chapter V.

EDUCATION FOR PHYSICAL EFFICIENCY.

The physical aspects of one's home life—one's play, sleep meals, the personal hygiene and sanitation of the home,—will constitute the basic aspects of one's education in this field. The school will take these various physical activities of the children as the starting-point for increasing their information as to the various things and for perfecting their habits.

Wherever the child goes, he takes his problems with him. The fundamental activities relating to the physical training therefore transfer to the school, so long as he is there. These can be used as the basis of his physical education.

The ventilation problem for example, exists at the school as fully almost as at the home. The responsibility for taking care of the ventilation in the school room can be placed upon the pupils, beginning with a rather early age. They can be trained to habits of watchfulness as to the condition of ventilation. They can be made sensitive through this watchfulness. Then with this as a basis the necessary technical information can easily be given. Having entered into the practical and the technical in so large measure at the school, it is then possible to extend the consideration of ventilation to the home living rooms, dining rooms, and especially the sleeping rooms. This part of their fundamental activities cannot be transferred to the school; but after students are made sensitive to the problems at the school, they can do the same things at home; and through **doing** them, get their education. **Only as knowledge is used, is it properly assimilated.**

The placing of the school ventilation responsibilities upon the pupils in San Antonio for purposes of their education is especially facilitated by the fact that in practically all of the schools, ventilation is by means of windows. For reasons to be pointed out in a later chapter, it is probable that ventilation of school rooms in San Antonio should always be chiefly by means of windows. The teaching opportunities should not be thrown

away by leaving the ventilation to the janitor, the teacher, or by turning it over wholly to a mechanical ventilating system. The work should be assigned to the pupils by relays.

Training in the hygiene of the eye is in a large measure training one to a proper control of the light in which one works. Like ventilation this is a problem that transfers rather largely to the schools. The children should be required for purposes of education to take care of the blinds and other matters involved in the control of the light of the school rooms. The technical matters relating to the intensity of light, proper direction of light, the elimination of shadows in one's work, the nervous harmfulness of glare and eye strain, etc., can be easily taught in direct connection with the practical situations. Owing to the fact that San Antonio school rooms for the most part, have windows on two or three sides, the control of the lighting is a continuous problem, throughout the day and the year, and can be made the basis of practically all the training needed for this topic.

Physical upbuilding exercise, which is one of the most important things in the physical training of children, can be transferred in a very large degree to the schools. Because of the fact that play activities are better when social and varied, they can be carried on better at school than at most homes, if the school desires it.

This subject of education is coming to be recognized as legitimate in San Antonio. Certain schools, particularly certain outlying schools like the Highland Park, or the Beacon Hill, are fairly generously supplied with outdoor play space. On the play-grounds at quite a number of schools, one finds giant strides, swings, teeter-boards, basket-ball outfits, volley-ball outfits, horizontal bars, childrens' slides, and occasionally certain other play-ground equipment.

The movement thus begun needs to be continued in a number of ways. Every school in the system needs such an outfit of playground apparatus as is now being developed at certain of the schools; and in addition to the things named, there perhaps ought to be certain other matters like a sand-bin for the little

children, a croquet ground or two with its equipment, a tennis court or two, indoor baseball outfits to be used outdoors, a tether ball equipment, etc. The largest and most difficult problem in this connection for San Antonio relates to the surfacing of the school grounds. Most of the school grounds require filling and draining. After this is done there is the problem of providing a surface that will not be muddy in rainy weather; that will not be dusty or stony in dry weather; that will not be too hard or stony for children to fall on; and which at the same time is durable and requires relatively little care. No such surface has yet been discovered that is sufficiently inexpensive. The city ought to investigate and experiment with different possible surfacing by way of finding improvements over present conditions.

After grounds are equipped for proper physical education, it is desirable that they be used for this purpose. The play activities for physical education need to be just as much a part of the regular daily program as the arithmetic drill for vocational training, or the grammar drill for one's language training. Well-developed health of body is fully as important as well-developed language. The play needs to be a part of the daily program of every child. It is too important to be left simply to the voluntary activities of children at the inadequate recess periods, or to the unsupervised before and after school periods. It should be left unsupervised no more than arithmetic is left unsupervised.

There is a great variety of games open to boys and girls. Generally however, they know relatively few, because of lack of teaching and other lack of opportunities. Just to illustrate games that children should know, the following list is presented:

Children 6 to 9 Years Old.

Crossing the Brook,	Circle Ball,
Charley Over the Water,	London Bridge,
Farmer in the Dell,	Fox and Squirrel,
Cat and Rat,	Nuts in May,

Ring Call Ball,
Shadow Tag,
Stoop Tag.

Puss in a Corner,
Water Sprite,
Shuttle Relay.

Children 9 to 12 Years Old.

Arch Ball,
Hunt the Fox,
Roley Poley,
Dodge Ball,
Captain Ball,
Club Snatch.

Cross Tag,
Drive Ball,
Stride Ball,
Three Deep,
Black Tom,
Duck on a Rock.

Children 12 to 15 Years Old.

Prisoner's Base,
Curtain Ball,
Keep Moving,
Black and White,
Bombardment,
Basket Ball,
Round Ball,
Volley Ball,
Square Ball.

Whip Tag,
Zigzag Overhead Toss,
Double Relay Race,
Pig in a Hole,
Circle Race,
Dumb Crambo,
Fox and Geese,
Forcing the City Gates,
Pass and Toss Relay.

In the later grades and high school, the games and athletics of the boys will differentiate more and more in kind from those of the girls. Most of those given above are good for either boys or girls. Certain games like baseball, football, tennis, hockey, shinney, leap frog, badminton, tug-of-war, duck on a rock, tetherball, prisoner's base, scrimmage ball, forcing the city gates, bombardment, relay races, etc., etc., are particularly valuable for the older boys.

Especially desirable for the girls but valuable also for the boys are the rhythmic folk games and rhythmic gymnastic games, usually to the accompaniment of music. A few of the more valuable of the gymnastic and folk games are the following:

Folk Games Suitable for Small Children.

Hey, Little Lassie,	Csardas,
How do you do, my Partner?	Today is the First of May,
I see you,	Shoemaker's Dance,
Mountain March.	Nigare Polska.

Folk Games Suitable for Older Girls.

Csardas,	Reap the Flax,
Fjalnas Polska,	Komarno,
Harvest Dance,	Strasak,
Laudnum Bunches,	How Do You Do, Sir?
Trollen.	Varsouvienne.

The school buildings in San Antonio have never been planned to take care of the physical education of children through exercise. Owing to the mild climate it is generally felt presumably that the outdoor play on the playgrounds is sufficient. While outdoor play should constitute the major portion for most boys and girls, yet there are certain desirable rhythmic folk and gymnastic games that can be taken care of indoors. For these reasons the buildings ought to be constructed or furnished so as to provide opportunity. At the Crockett or buildings on the type of the Highland Park building, the fairly wide corridors can be used to very good purpose at certain times of the day. If care is taken to secure good air, and to prevent dust at the Crockett School, the large open spaces in the basement can be so used. One of the best suggestions to be found in San Antonio is at the Smith School. If the large pavilion there possessed a good floor, it would be a relatively inexpensive method of providing for all such gymnastic, folk, and other indoor games in a climate like that of San Antonio. It could be used almost every day of the year, and the play classes could go there for regular play exercises on the program in just the same way that they go to their manual training and domestic science classes. Naturally such a pavilion would need to have a very small room in which a piano could be kept, but which when opened would permit the use of the piano for the pavilion with-

out moving it. Such an inexpensive pavilion consisting of little more than roof and floor could be of very large service at every school in the city, not only for physical training purposes throughout the entire day, but also as a social gathering place for the community for eight months of the year. It is probable that the open air gymnasium of this type, will be the kind of most practical value for both elementary and high schools in this mild climate.

Another suggestion as to the method of finding floor space for the folk and gymnastic games is to be found in the new mathematics room at the Main Avenue High School. This room has been seated with a modern type of chair-desk, which is altogether suitable for the scholastic labors of the school room, but which is movable. A class can clear the floor in thirty seconds, and make it ready for indoor exercises. Owing to the development of activity and of variety in school work, it is altogether probable that in the school rooms of the not greatly distant future it will be found desirable to have them furnished in such a way that one can change easily from one type of activity to another. At present with their fixed desks and seats the rooms are equipped for little more than simply book work; sitting, writing, reading, and listening. The use of the chair-desk, however, permits readjustment without difficulty, so that a room can be used for first one thing and then another. The city would do well it seems to consider the advisability of purchasing movable chair-desks or similar movable furniture for new buildings and new rooms that are being equipped, and for replacing furniture in buildings where the older equipment is being discarded.

There is another type of physical play which is highly valuable for such a climate as that of San Antonio, but which has not yet been sufficiently valued. It is a thing too, which can be transferred to the school, and in fact thrives rather better when transferred to the school and properly supervised by adults. Reference is made to the swimming pool. There are things of which San Antonio schools have greater immediate need; but it should not be lost sight of in plans that look somewhat to the future.

A glance of the list of plays enumerated in the preceding paragraphs, which are being introduced as a necessary part of the physical education in our progressive cities, shows the need teaching. The children do not know the games naturally any more than they know their grammar naturally. There must be teachers to take care of this aspect of education. They are better called play leaders, and they perform their services more effectively when they are actually play leaders. While the usual opinion has been that children play without teaching or leadership, yet as the result of practical experience everywhere, it is coming to be learned that the play of children thrives best under proper leadership.

It is especially difficult to turn this type of education over to the regular teacher at the present time. Generally she does not know the games, especially those of boys. She does not usually look upon it as a legitimate portion of educational labor, and is not apt to take it seriously. Such work on her part requires a special physique, a special point of view, special knowledge, often a special form of dress, things that the grade teacher does not generally possess. In developing such work within a building, it will be found best to give the work over to special teachers so far as possible. Until work is more departmentalized than at present, this will scarcely be practicable. For the present most of it will have to be taken care of by the grade teachers under the supervision of the physical training director.

At the present time physical education in the San Antonio schools takes the form of Swedish gymnastics. This is not a thing that is made to grow out of the natural life of the children within the community. It is not an enlargement, an expansion, and refinement of fundamental play activities found in the actual population of San Antonio; and since it does not relate to the childrens' general out-of-school life as a natural supplementary portion, it is a thing that remains to them foreign, meaningless, and uninteresting. In the classes observed both the teacher and the pupils were going through certain lifeless mechanical, perfunctory exercises that were sufficiently joyless to all concerned, and which certainly were not bringing about any physical ed-

ucation. Everything was feebly and passively done. There was none of the exuberance of muscular expenditure that one sees in childrens' play. The only thing that approached real exercise observed in such classes was when a primary class of about the third grade, after closing their Swedish gymnastic posturing, ran briskly once or twice around the class-room. This running was something like dropping down to fundamentals. It seemed to be appreciated, and although lasting for only about thirty seconds, was certainly more valuable than the entire preceding ten minutes of posturing in response to commands. One would be safe in saying that if the physical culture work of the schools in general was fairly represented by the four exercises observed, that it is certainly worth only a very small percent of the \$22,000 that is annually being paid for it by the city. The efficiency of the exercises was so low that it would be a perfectly safe estimate that the city is annually investing \$15,000 for which it receives no return. A-committee of laymen, physicians, public-spirited women, etc., people who are able to see education more clearly from the point of view of fundamental human needs and whose vision has not been so distorted by the academic atmosphere, should be invited by the school board to visit some of these physical education classes as they are conducted by the regular class room teachers throughout the city in the absence of the supervisor and to report whether in their opinion the large expense of this type of physical education is justified by the results.

It would be better if the time and money now being expended upon this so-called physical education should be turned into the development of the natural fundamental play activities of children along lines which they can understand, which they appreciate and into which they can enter with vigor. The schools should add much of a supplementary nature. It should look forward definitely to the development of recreational play habits on the part of adults. In an industrial age like ours when specialization is becoming so narrow and when men in large numbers are old and thrown on the scrap heap at the age of forty because of their lack of physical and mental flexibility,

we are coming to discern the great need of continuing play activities through adulthood for the sake of keeping normal. The automobile for example, which is mostly a pleasure vehicle is serving a very important function in this field for those who can afford them. It is forbidden to most because of the expense; but when a city has the meeting centers for social purposes of a type that could be easily had in San Antonio, and when its population has been trained to healthy leisure occupations in the way of rhythmic gymnastics and folk games, in tennis, basketball, volley ball, the so-called indoor baseball which should be played outdoors always in San Antonio, in swimming, running, jumping and other athletic contests,—when the adults of the city are trained to these things, and at the same time provided with the necessary recreational facilities, then men may easily retain their youth and vigor and plasticity through an entire lifetime. Until recently we have looked upon play as a thing proper only for children and the wealthy leisure classes. They indulged not because they needed it, but because they liked it. In these later days, however, we are coming to see that relaxation and recreation for our manual laboring classes, both men and women, are not only desirable for the pleasures that they give but are absolutely indispensable for continuing vigor, physical and social normality, and for continuing youth and adaptability throughout an entire lifetime. Proper leisure occupations of the type described are more necessary for the laboring classes of our population than for the well-to-do. The latter class finds plenty of social relaxation, etc., in the course of their regular labors. This is not the case, however, with those that do the monotonous, heavy work which is every whit as necessary.

Before leaving this topic of bodily development through physical recreation, we should call special attention to the situation at the high school. Here we find the best of the city's children. Work begins at 8:30 in the morning and runs practically without intermission until 2:00 in the afternoon. Except for certain shop-work, it is all of an academic character. There is no gymnasium, no athletic field, no physical training teacher, no systematized training of any sort. At the close of the after-

noon session, there are still four hours of daylight in San Antonio on the shortest day of the year. The children are turned out of the high school with this long stretch of time before them and sent away to their homes. While the high school has considerable out-door play space,—inadequate for so large a high school, but yet considerable,—it is not utilized for physical education. It is used only voluntarily by certain students when the uncared-for grounds will permit. Some of the high school boys and girls are able to find away from the school sufficiently desirable opportunities for physical recreation within a social atmosphere necessary to the proper education of youth at this age. The majority of them, however, cannot do so. This is the social age par excellence and physical recreations of these adolescents should be social. Moreover, it is the age when they will develop the habits, social and recreational, that are certain to persist in the majority of cases throughout life. When this necessary portion of their education is left only to the random opportunities of the homes and streets and the occasional public dance hall or other public recreation places, the necessary education in the majority of cases is not accomplished, or it is badly accomplished. The loss is a serious one of which communities in general are not yet sufficiently conscious. They have not usually studied the developmental values of physical recreational exercises. If a community, however, will lay aside all of its prejudices and predilection and will look upon these various matters from the point of view of plain common-sense, they will see that such socialized physical training is of incalculably greater value than the relatively useless algebra and Latin for which the community is paying so much. If a city cannot afford both, it should choose the one of greatest value. Only those who have not yet sufficiently considered the question in all of its bearings can fail to see which this is.

With its present grounds, the high school might do a great deal, if it set about it, by using the three hours between two and five in the afternoon, and also by introducing certain periods during the regular scholastic day for physical training in the way to be found in the majority of well-developed high schools, where

the gymnasium is generally used for this purpose. There is no reason why the San Antonio high schools might not employ what we call an outdoor gymnasium. The grounds need surfacing. In the recent recognition by the city of the need of proper surfacing for the streets for traffic, it should also be recognized that there is an equal need for proper surfacing of the school grounds which are used for just as important purposes and by just as large a fraction of the population. With properly surfaced grounds, with proper sprinkling to keep down the dust during certain portions of the year, the outdoor grounds in this city might be made to serve practically every purpose of the indoor gymnasium in colder regions, and at the same time possess certain physical features of great value that cannot be had in the indoor gymnasium. One of the benefits of such outdoor physical education would be perhaps a greater tendency toward athletic games, and less tendency toward mere mechanical gymnasium exercises which should be for most youths avoided when games and athletics can be made to take their place. There is no reason discernible why the carpentry classes of the high school might not construct a roof and floor of such a pavilion as is found at School No. 15.

To carry out such work, the high school needs two physical directors, who have been fully trained for work in this field, a man for the boys, and a woman for the girls. The extra period of time can be found in the high schools either by cutting down the amount of time now given to book work, or by introducing the physical period into the regular program and thus extending the day to 3:00 o'clock. One cannot speak arbitrarily as to the desirable length of the high school day. It all depends upon what is being done. If the work is developed so that much of it is active: shop-work, laboratory work, games on the play field, folk games, music, public speaking, etc., a longer day than the present one for those who have no great amount of home work to do, is certainly desirable. When the work is over-academic, as it is at the present time, even the five and one-half hour day may be too long.

When the city, a few years hence, sets about building its new high school, provision for physical education should receive long and serious attention. If an attempt is made to utilize present facilities as fully as possible, by the time the city is planning its new building and grounds it will have developed a fund of practical experience that can serve in large degree as a practical foundation for judgment in deciding what should be done.

As we shall have occasion to point out in the chapter on buildings, San Antonio conditions are very different from those of the colder cities of the north and northeast in connection with whose buildings most of our books are written. It is not possible simply to borrow their modes of construction and apply them to San Antonio conditions. This city needs more open air facilities. Serious mistakes can be made from such an attempt to borrow ideas from a different climate. Things for San Antonio must be worked out in San Antonio and in cities similarly situated. To try out the plans suggested is one way of finding out how to plan for the new building.

Thus far we have been considering only the practical exercises. In connection with these, there should be introduced a large amount of technical, scientific information relating to the physiology and the hygiene of muscular exercise. There is a great wealth of such scientific information relating to the effects of exercise upon respiration, expansion of the lungs, developing healthy conditions in the lungs, rendering them less susceptible to disease, the effects of exercise upon the heart, upon the arterial and venous circulation, upon digestion, upon the health of the various digestive organs, upon assimilation within the tissues, upon general nervous tone, effects upon the kidneys, relation to wastes, upon resistance to bacterial attacks, upon relation to balanced dietary, to sleep, to periods of work and rest, to fatigue, to nervousness, to organic diseases, and to a large number of other things. The physiology of the schools which at the present time is so abstract and so little related to the actual problems of life can be given functional virility only as it can be directly related to such fundamental physical activities.

This is stated in full view of the excellence of the textbooks now used in the elementary school on this subject as compared with the type of textbook commonly used until recently. But even a good text after rapid preliminary reading is best used as a reference book in connection with practical situations. It should not be a thing that is merely to be learned and recited without reference to the human situation in which children and teachers pass their days. The high school which needs the heavy work in the hygiene of exercise is not so fortunate in its textbook. It is more along the line of the old-fashioned physiology. The high school needs a better text and it needs library facilities which will permit teachers and pupils to gather up the various needed items of physiological and hygienic information. The amount that should be gathered together and taught upon this one topic alone is larger than the whole sum of information now to be found in the textbook used in the high school.

Social as well as technical understanding of the topic is needed. This, like civic and industrial topics, should be given wide social perspective through history, geography, economics and sociological studies. In the reading of the pupils, they should come to see and understand the way the physical play impulse has worked itself out in the various nations of the world, past and present. A knowledge of the physical training of the Greeks before and during their Golden Age has for our times as much significance as a knowledge of their art and their political adjustments and problems. One's studies should show that it has been during medieval and modern times one of the largest factors in the development of national virility and strength. The studies of a social sort should show the obstructive influences that are growing up in our cities, which must of necessity lead to national degeneration of our population unless by taking thought we provide for corrective training and corrective opportunities for the population. Studies should enter into the economic costs of such humanitarian provision in many cities of the United States and in cities of foreign countries; and into the methods that are being employed.

A further major topic in this general field of physical education is personal cleanliness. The practical activities in this training can be only in part transferred to the school. The building and grounds can be made as perfect a living place as possible on the side of cleanliness. Then to live five or six hours a day in a building that is as clean and sanitary as a hospital, is unconsciously to develop within one an understanding of the nature of housing cleanliness and sanitation and of an appreciation of its desirability. Everything about the school should be so clean and so attractive to the eye as to suggest the desirability of cleanliness of clothing, of person and belongings, because of the incongruity of anything else within that situation. The ugly and unclean within ugly and unclean surroundings appear perfectly natural and congruous; but when the unclean and ugly are set down in the midst of a situation that is clean and attractive in every way, the undesirable stands out in repellant contrast. The individual who is responsible for this contrast, if he has any social or aesthetic sense—and there are few that lack it—is impelled of his own accord to make such correction as he can. One's practical education in cleanliness should so far as possible take this social form.

In neighborhoods where the homes do not furnish necessary facilities for personal cleanliness, where the standards are low, it is desirable that a portion of the practical activities be transferred to the school, and opportunities provided for promoting personal cleanliness. Certain schools in San Antonio need bathing facilities more than they need technical grammar. It would be a very easy matter for the carpentry shop boys to construct buildings which contain shower baths which might be used as a regular portion of the class education of the children. In a number of cities this feature of education is obtaining a regular place upon the program. In those schools in San Antonio where the work is needed most of the children do not go to the high school. The facilities are needed within the elementary schools. **It is needed as a portion of their training.**

We have discussed these four topics of ventilation, lighting, physical exercise and personal cleanliness, by way of indicating

how training can be made to grow naturally out of practical situations. They are merely illustrative. Those responsible for education in each school should assemble the list of matters in which the pupils actually need training in order to promote health and physical efficiency. The schools should not get the topics from reading the textbooks. They should be got from reading the conditions within the district about the school.

After training for physical welfare is developed as fully as possible along desirable lines, it still remains that the major portion of one's actual physical training must take place under out-of-school conditions. At present the pupil cannot be at school more than thirty hours a week, while he must be at home, upon the street, etc., for the other one hundred thirty-eight hours each week. The things done during this one hundred thirty-eight hours may be more powerful in determining health habits, points of view, standards of judgment, than the thirty hours at school. If the short time at school can be knit up with the long time at home so that the child or youth remembers the technical teachings of the school and uses these for the practical guidance in his out-of-school activities, then such practical use of his knowledge educates him in desirable ways. But children are short-sighted and prone to forget. The teacher needs to be in contact with the parents and with the home-life. No one ever expects long-range work in the curative labors of a physician; he must be in intimate contact with the situation where the cure is effected. It is no more possible to do constructive physical teaching labor at long range; teachers must be in intimate contact with the situations where the education can be effected. **And this is where the knowledge is put into practice.**

In addition to that just mentioned, there is needed another link in the situation. In more than a hundred cities in our country this is the home-visiting health nurse. The work of the nurse is being developed in connection with the physical education and medical inspection activities of the school. It is found that these latter activities largely fail of their purpose unless the link between home and school is greatly strengthened so that the supplementary teaching and advice of the physician and

teacher can be made actually to bring about results in the fundamental activities of the home. The child cannot be expected to make the connection in sufficient degree. The "follow-up work" of the health nurse is a mode of helping the supplementary teaching to make the right connection with the fundamental application. In going to the homes, in visiting and advising with the parents, in becoming an advisory of the home, so to speak, the school nurse is coming to do for physical education in one of its aspects what the visiting agricultural teacher is coming to do in many places for the home gardening.

We are learning that education must be accomplished in the ways and in the places where it can best be done, and not merely where we think it most convenient to do it. The school house is not the best place for much of it. In fact it is not the place at all for a good deal of it. The sooner this is realized by a community, the sooner will it be able to put its education upon a sound and effective basis. So long as our schools are expected to do everything at the school house, the work degenerates into mere subject-teaching, some of which is of value, much of which is of no value. The community gets about fifty cents value for every dollar spent; and the school remains within its proverbial atmosphere of impracticality.

We are learning that education must be accomplished by the one who knows the various problems, and not merely by one who happens to have a teacher's certificate. For a certain part of the work of personal hygiene and civic sanitation, the school nurse is the best teacher. As a matter of fact, it is altogether probable that a trained school nurse who has had a proper medical course, a proper course in social and personal sanitation is the one who should do the major portion of the teaching of these matters, both within the school and within the general community. In the immediate present, however, there are not enough nurses properly qualified to take the educational point of view as well as the hygienic; and generally a city does not employ a sufficient number. As a result their teaching must be mostly through individual advising of pupils and parents, with occasional talks to them upon important health topics. They

should, however, be very fully the intermediaries between the home and the regular teachers as to the teaching needs. In their visiting of the homes they come to know exactly what is to be found on the side of the fundamentals. They need to keep the teachers within the schools definitely informed as to what is needed on the side of the supplemental; and they should be the supervisors of the content of the work. The visiting school nurse has functions beyond the mere physical ministrations to children's needs within the home. She needs to perform a large quantity of intellectual ministrations as well. This brings us to a discussion of the medical department as a portion of the school work.

At present the medical department is only in the beginning of its development in San Antonio. An able and well-trained physician is being employed for a part of his time. There are, however, no school nurses yet employed. Their employment constitutes one of the next necessary steps. To indicate the position of San Antonio in the matter of money expended for this branch of educational service as compared with the amounts expended in other cities of the same population class, the situation is presented in Table VI.

Table VI.
Expenditure per Pupil for Promotion of Health,
City Schools.

City	Amount Spent.	City	Amount Spent.
Hoboken, N. J.	\$.78	Oakland	\$.66
Duluth, Minn. ....	.44	Trenton, N. J. ....	.43
Richmond, Va. ....	.42	Camden, N. J. ....	.41
Toledo, O. ....	.40	Jersey City, N. J. ....	.40
Scranton, Pa.	\$.38		
Providence, R. I. ....	.36	Norfolk, Va. ....	.36
Lowell, Mass. ....	.34	Springfield, Mass. ....	.34

Atlanta, Ga. ....	.32	Erie, Pa. ....	.31
Des Moines ....	.30	Nashville, Tenn. ....	.28
Harrisburg, Pa.		\$.27	
Spokane ....	.25	Elizabeth, N. J. ....	.25
Lynn, Mass. ....	.24	Youngstown, O. ....	.23
Hartford, Conn. ....	.22	Houston, Tex. ....	.20
Dayton, O. ....	.19	Grand Rapids ....	.18
St. Paul		\$.18	
Birmingham, Ala. ....	.17	Akron, O. ....	.16
St. Joseph, Mo. ....	.14	Columbus, O. ....	.12
SAN ANTONIO ....	.10	Wilkesbarre, Pa. ....	.10
Salt Lake City ....	.08	Tacoma ....	.05

The table shows that San Antonio after less than two years of attention to this department, finds itself in advance of certain other cities, but very considerably below the average practice of the cities in the country. Experience indicates that in cities where there are 10,000 to 12,000 children in the schools, as in San Antonio, there is needed the full time of one physician; and for the usual routine work, the full time of two or three nurses. It is felt to be better to employ one physician for full time than to employ two physicians for half time. The one physician on full time can specialize on this aspect of educational labor and can have no distractions and calls upon his time of the sort that are unavoidable in the case of the physician who is at the same time carrying on a private practice. Naturally in employing a competent physician for full-time work it is necessary to pay a salary sufficient to secure a high type of man. A city of the size of San Antonio will not be able to secure effective full-time service on a salary of less than \$2500. Two properly trained school nurses ought to be had at salaries similar to those being paid to teachers.

The medical arm of the service should examine every pupil in the schools at stated intervals and any other pupil whenever any suspicious development presents itself. Such examinations

always reveal a large number of incipient troubles practically all of which can be remedied, if taken in hand in time. Then it is the business of the school nurses to follow up the cases that require attention through consulting with the parents and advising with them so as to bring them to give to the children the necessary medical attention. Without the school nurses not a great deal can be accomplished by the school physician except the examination for and the isolation of contagious diseases. For other troubles, the physician working alone can make out formal cards and notify the parents; but it has been found from experience that such notifications are neglected in ninety percent of the cases. The result in such cases is that nothing comes of the examination by the physician; his time and labor and the community expense are wasted. Except for the contagious disease side of the situation the work of the medical inspector cannot be made profitable unless nurses are employed for follow-up work.

All physicians, dentists, and nurses, engaged in this work should in time be employed and paid by the school city. In the immediate present, however, in the development of the work, the city should make use of any voluntary medical and dental associations that might be willing to donate their services. In many cities, for example, free dental clinics have been carried on by the dental fraternity which are for the purpose merely of finding and recording dental defects. Parents can treat or not, just as they wish. In such preliminary dental examinations there is absolutely no danger of dentists manufacturing defects for the sake of manufacturing work for their own profession. Wherever medical inspection has been well developed it has been found that from sixty to eighty percent of the children are in serious need of dental attention. The real needs are so very many that it is not necessary for the dentists to point out in their examination defects which do not exist. They exist in overabundance and parents need to have them pointed out. Parents are negligent of their childrens' welfare generally because of ignorance of conditions. It is a service to them to have defects pointed out. If they have doubts as to the actuality of any

defect found, they can examine for themselves. Such things are usually visible when one gives attention to the matter. While this is not by any means the best mode of taking care of teeth-inspection, yet its advantages far more than offsets its disadvantages. It should be taken advantage of until the city is ready to employ a school dentist for the work.

This plan of voluntary examination is one that can be employed also in the general medical examination which should cover all the children in the city. It is less easy to verify the results and recommendations of the examining physicians in the case of very many kinds of defects, and this perhaps is why such examination by voluntary medical associations has been less employed than the dental examination. But where there is a school physician employed by the city, in all cases examined where recommendations for treatment are made, their findings can be checked up by the school physician. We would recommend such a plan only until the city could have its own employed physicians and school nurses to do the work.

Until such routine examination has been made of all of the children of the city it will not be possible for San Antonio to know the extent of the need of dental and medical attention on the part of its children. The need is always found to be far larger than the city suspects.

The city can afford the expense. Table VI shows that the school boards of most cities are of that opinion. The work is not only profitable for the physical education of the children; but it lays the necessary physical foundation for efficient educational work in all subjects.

Ill-health necessarily slows down the work in the classrooms. Let us suppose that it is slowed down one percent. The city is paying \$600 per hour for every hour that schools are in session. They are in session about 170 days or 850 hours. Every one percent slowing down of the work means a loss of \$5,000 of money actually spent. If it were spent on school physicians and school nurses, their work would save far more than one percent of the school's time; and far more than their cost.

Chapter VI.

EDUCATION FOR LEISURE OCCUPATIONS.

Exercise alone will develop a man, and this alone will keep his powers up to normal strength. Everbody recognizes that this is true of his muscular development. It is just as true of his mental and social development. When not exercised these powers dwindle and become enfeebled in just the same way the muscles grow soft and flabby and feeble. Men are old before their time and thrown upon the scrap-heap because the mechanization of industry combined with the lack of stimuli to other kinds of mental exercise have left them mentally weak and flabby. The corrective to specialized industry is the possession of a variety of leisure occupations and recreations on a proper social and mental level to which one can turn for his enjoyment, and in the enjoyment of which he keeps his mind fresh and vigorous. Recreations that involve social and intellectual elements build him out along the lines that are left neglected by his narrowing vocation. The kinds of normaling recreations for which he needs training are such as the following: (1) Reading concerning matters that touch all the important angles of human life; reading about industry, commerce, inventions, applied science, travel, biography, history, literature, geographical and social relationships, etc., etc. (2) Conversation, discussion, debates, lectures, etc., involving more personal contacts than in the case of reading, but touching the same fields of ideas. (3) Avocations or hobbies, things that lie outside of his regular vocation, either closely related to it or in an entirely different field. The man who is continually taking up and mastering new things during his recreational hours will keep himself intellectually exercised in highly desirable ways. (4) Travel and observation of human affairs. (5) Sports, plays, games, and other things already discussed in the section on physical education.

In discussing leisure occupations, recreations and play, we are treating things of serious adult necessity. They are neces-

sary normalizing influences under conditions of our specialized age. Fortunately one enjoys them; but if there were no results other than mere enjoyment perhaps the whole matter could be left to individual initiative. But the values are deeper than mere enjoyment. The whole character of the man is in large measure the result of his leisure occupations. If these are low, petty, or sensual, then in character, he becomes low, petty, and sensual. If on the other hand he lives in a world of at least moderately high thinking and enjoys living in such a world; if his recreations, his conversation, his reading, his observation, his sports, games, etc., are upon a proper humanistic level, these things make him an entirely different type of man. What a man does makes him what he is.

Here we find the justification for the teaching of so much literature in the schools. But when one looks at the materials used, and at the methods of work, one wonders if those in charge of the work have consciously defined their purposes. The purpose evidently should be **the habit of doing much reading of a varied character.** The way to develop any habit is to do the thing for a long time in just the way one wants the habit formed.

The schools need therefore to offer the necessary facilities for interesting reading of a varied character touching upon the entire round of things which the adult should be habituated to read. There should be literature in abundance of varied types, suited to the comprehension and interests of the pupils. It should be read just as the adults out of school will be expected to read,—for the sake of the interest in the substance of the reading of the story. The reading should be continuous and moderately voluminous. It should not be much dissected, analyzed, or recited upon. The literary reading of the elementary schools should be rescued from the said slough of methodology in which it now lies in San Antonio,—the four “attacks,” the dictionary study, the diacritical marks, the syllabification, the “interpretation of thought getting,” the extraction of the thought from the pupils by minute piece-meal quantities, the “expression or thought giving,” etc., etc. The mince-meat method of study-

ing literature destroys all the life of it. A selection to be appreciated should be taken up and read through continuously and enjoyably from beginning to end. The thing is not read to be "learned." Most literature reading should be silent reading and home reading. If the children will not do the reading without the heavy recitation driving, then the wrong selections have been chosen for those children. They must do it all with a reasonable degree of spontaneity, or it will never develop a permanent leisure occupation.

In the lists of reading needed by men for their leisure hours, reading of so-called good literature is but one of many things. The world of literary art is mostly a world of fiction. Much of it is so-called, but the poetry, the drama, the stories, in large measure relate only to things and incidents that have their existence in the world of art. In a complicated world of serious affairs, it is probable that one's leisure reading should relate itself much more with the things of serious affairs, than with the things that exist only in the world of art. The reading habits of pupils should probably be developed in large measure in connection with things of the actual world of affairs. The things are infinite in number and variety; and when written up in proper fashion are just as interesting to the boy or girl as the fictions and subtleties of the world of literary art.

Give to the boys full, voluminous, well-written accounts of the invention of the aeroplane, of modifications as it is being improved, of different ways of developing it in different lands, stories of adventure in connection with this machine, stories involving its uses and applications to the various fields of human affairs, reading as to the scientific aspects, mechanical and otherwise; give to him surmises and prophesies as to the ways it may be developed and used in the future; and the normal boy will, if it is written in the proper fashion, read the whole of it with interest, avidity, and profit; and when one observes his interest and his intellectual exhilaration one sees the absurdity and the futility of using the analytic, mince-meat method of developing the thought in his school reading. His reading is actuated by the kind of motives that we wish to have prevail during his adult

years. If it is to continue through his adult years, it must be formed during childhood and youth in the way that it is then to operate.

Give the boy or girl of San Antonio an interestingly written book upon the cotton industry, which shows the nature of agricultural life upon the cotton plantation, the nature of the labors there performed, the shipping and the manufacture of the cotton, the conditions of life within the factory, and the factory town. Show the processes performed within the factory by means of pictures. Read of the life on cotton plantations in Egypt, and India, and Formosa. Read of cotton manufactures in England and Germany, and Bombay, and Japan, etc., etc. When well-written and well-illustrated, boys and girls will find this just as interesting reading and often much more interesting reading than the literary subtleties of the school reading books, and incalculably more profitable. To make such reading concrete, it should introduce the personal in very large measure. This can be done by introducing the things historically in narrative fashion and using a great deal of the biographical element.

Before this training for wide reading in many fields can be accomplished, the schools need to be equipped with the necessary reading materials. Whatever else has to be cut out because of a lack of funds, this is the one thing for which we do not hesitate to recommend immediate and generous expenditures. The school board should purchase thousands of volumes of books relating to the various departments of human affairs to be used in connection with history, geography, civics, industrial studies, literature, etc.

The fundamental world in which the children of San Antonio live has a relatively narrow horizon. It covers but a few square miles. Beyond this horizon stretches in every direction the wide world of industry, commerce, transportation, art, travel, government, human institutions, etc., etc. Although the child in San Antonio sees literally into this large world of affairs but a short distance, as a matter of fact San Antonio conditions are linked within the wide interconnected web of affairs that

lies out over the whole face of the globe. It is necessary for San Antonio children in their supplemental education to be given a vision of this wide world of things and relations which stretches out beyond the horizon to the far side of the earth. This is in fact the largest single task that is placed upon the schools. But in order to accomplish it, in order that the vision of these children may carry so far, the necessary instruments of vision must be provided. It is these reading materials that will permit them in their imagination to enter vividly into human affairs in every portion of the world. Because of a lack of these necessary instruments of vision, the city is probably not reaping more than fifty percent of easily possible results for the heavy community investments in history, geography, civics, science, literature, etc. After buildings are built and manned with high-priced teachers, the investment should not be half nullified by failure to furnish the necessary tools for the work. The public's faith in the magical power of teachers to accomplish a half million dollars worth of work with no tools but talk and state-adopted textbooks is mostly misplaced faith.

On the side of literature only, the Main Avenue High School is much better situated than the elementary schools. Each class in addition to the regular three or four educational classics read each year, is supplied in the library with from four to six supplementary books of English and American literature. The books are chosen too largely from the point of view of literary predilection; but still the list as a whole possesses a very large degree of human interest. They have been furnished by the board in sets sufficiently large that when they are taken up, each individual in the class can be supplied with a copy. Of the forty sets or so of such supplementary literary reading, there are in the neighborhood of 2,000 copies. So far as it goes, this is excellent, and indicates what the board ought to do for all grades in the elementary schools, and also for the wide range of reading needed in all the other fields of the public training.

Let us now glance briefly at certain other leisure occupations in which training is needed. High school students are highly gregarious and have often a tendency to organize in undesirable

ways. The proper way to forestall this is not to forbid adolescent organizations, but to organize them along socially desirable lines, and to utilize the tremendous power of this adolescent gregarious impulse for educational purposes. At the present time very much valuable work along this line is being done. There are debating clubs, dramatic clubs, a high school Congress, a Jeffersonian Literary Society, a Shakespeare Club, a Mark Twain Story-Telling Club, etc., etc. Generally a teacher is sponsor for the clubs and helps to keep the pupils' activities upon a desirable educational level. Little needs to be said concerning this work but that it ought to be continued and developed in every possible way. In time the buildings should provide more adequately for meeting rooms, social rooms, for both afternoon and evening use. The public-speaking teacher by all means should be required to be in constant contact with the various debating and literary organizations. The organization work furnishes the motive and the opportunity for such teacher.

Another leisure occupation of large value is music. This appears to be developing in a healthy way in the elementary schools. The city is giving about the average amount of time to it in the grades. In the high school, no mention whatever is made of music in any of the courses of study, and it is given no credit. There are, however, in the high schools, four periods during the week of chorus work, two for boys and two for girls. In addition to this there is a high school orchestra of fifteen pieces which meets twice a week for an hour or two of practice. For a city possessing so much musical talent and so many musical organizations as San Antonio, there is no need of stopping here to explain the value of music as a leisure occupation and the desirability of the school's seriously training for skill, understanding and appreciation of music upon proper levels. The musical leaders of the city should make an organized demand upon the schools for more adequate recognition of music as a legitimate portion of the high school training. The high school ought to offer a full series of courses and give full credit. It is the most popular form of art, and is certainly for the popula-

tion in general more valuable than certain subjects that are now taught in the high school, for which credit is given.

Reference has been made in a previous chapter to civic and social teaching, using the school assembly rooms as civic meeting places. The work can scarcely be made agreeable and attractive if the meeting consist only of the cold intellectual discussions. Along with the intellectual factor there should be an abundance of art, music, drama, pageant, etc., to give warmth and color and humanness to such gatherings. A high school orchestra in a city possessing the size and musical talent of San Antonio should consist of not less than sixty pieces. After ten years of development, the high school orchestra, together with skilled members who have graduated and are keeping up their music in connection with the school orchestra might well constitute a people's symphony orchestra for the city. The thing has been tried and has been made to work in other cities. Now that music as an element in human life is coming to be more appreciated in our school systems, this development of civic music through the high school orchestra is sure to spread to all of our cities in time.

The orchestra demands a degree of musical specialization and skill which can be expected of relatively few. For the majority, the less technical chorus is more suitable. The chorus work of the elementary and high schools can be developed for training purposes during school days; and can remain one of the very best of social leisure occupations during adult life. People's choruses meeting in the school assembly halls are sure to grow as the value of this type of leisure occupation is more appreciated, and as people find themselves sufficiently skilled to participate in it, through having been trained in the elementary and high schools.

A large part of the population will not continue its musical activities, vocal or instrumental, after school days are over, in any systematic active way. For them the training for music as a leisure occupation if rightly done has not been lost. They have been trained to higher appreciation and understanding. They are the listeners, and this is as much a musical leisure oc-

cupation as to be an active performer. Very much of the training therefore, needs to be for developing musical appreciation. This is best developed through much hearing of much good music. The technical teaching of vocal music, the chorus work, readings concerning the theory and the nature of music, biographical readings of composers, etc., etc., have a place in the development of musical appreciation. But along with all this, there should be full experience in hearing much music of proper quality. This is a further reason for the development of chorus work and instrumental work so far as possible in both elementary and high schools. It is a reason for introducing the Victrola, each with hundreds of records into every school, and the player piano. The reproductions furnished by these instruments is not always of satisfactory musical quality. In a very large percent of the cases, however, with good instruments, the quality is sufficiently high for developing an understanding of the nature of the world's best musical compositions. It can lay a foundation for appreciation accessible to all, which can be used for the further refinement, using more satisfactory instruments and methods.

Music, as far as possible, should serve as the back-ground of all sorts of social activities of the children from the kindergarten to the end of the high school. This is already worked out in the kindergarten. Music needs to be given its proper place in connection with the gymnastic and folk games, pageants, processions, marches, theatricals, evening entertainments, morning exercises, celebration of feast days, etc. Music has a large place in human life as the accompaniment of action; as such it serves as an emotional intensifier.

Chapter VII.

ENGLISH LANGUAGE TRAINING.

On the side of English, naturally every child in San Antonio should be trained to read well enough for his life's activities; to spell well enough for any writing that he may have to do which is to be read by others, but not to learn to spell words that he will not use in his writing; to learn enough grammar to keep his language correct enough for any circumstances under which he may use it, and not to give him any grammar beyond that which is needed for such correctness; to spend such time in polishing up his pronunciation as may be demanded by the language of the social class in which he is to move and act, but not to expend energy in polishing his pronunciation much beyond that which is actually required for future social participation in his own social class; and finally to give him such power to express his ideas orally and in writing as he may need for his life's activities.

The city's investment in English language teaching for the current year is in the neighborhood of \$210,000. This investment is large enough to warrant careful examination of the nature of the work and of the results. The situation should be carefully scrutinized to see: (1) That the things aimed at in the language teaching are things that are really needed. (2) That nothing is aimed at which is not needed. (3) That everything which is needed and which can reasonably be done is aimed at. (4) And that effective methods of work are employed.

READING.

What reading is done by adults for which training is needed in the schools?

Every man and every woman needs to read for ideas, suggestions and information in connection with the things of their callings; in connection with civic and political problems; for recreation; and for the general social enlightenment that comes from newspapers, magazines and books. These are about the only reasons for reading that most people will ever have.

All this will be silent reading. Now when reading matter is so cheap and everybody knows how to read and can read silently so much more rapidly than he can read aloud, oral reading has practically fallen into disuse. Ask the first hundred men and women you meet on the street how much time per week they give to oral reading, you will find that the vast majority do none at all. For the very few who do read orally occasionally, you will find that in the case of nearly all of them the quality of their oral reading depends chiefly upon the understanding of the substance of what they are reading; upon their thinking habits developed in connection with their silent reading; and upon their emotional life and the quality of their personality. They will tell you that the training for "expressive reading" over which the elementary school agonizes so greatly was in their case mostly so much waste of time. Their "expression" depends chiefly upon the quality of their minds, their fullness of general understanding, their emotions, their enthusiasm and their interest in the thing they read, and not upon the superficial attempts to put "expression" into their oral reading during school days. Expression is developed mainly by developing quality of personality. The purpose of teaching reading then appears to be silent reading for ideas, ease of reading, rapid reading, and ability to get all the ideas—at least a full quantity of them—as one goes along rapidly through the book or article.

Having this common-sense purpose in mind, any man or woman of good judgment can prescribe the method to be used. It is simply much practice in silent reading of the type desired. It is simply a voluminous reading of interesting and valuable books, newspapers and magazines. After the first grade has taught the symbols and started the pupil along this road, in the excellent way that one now finds being done, the main thing is to give him large quantities of good things to read; and things good to read. He needs opportunity, guidance, and stimulation; but beyond these he does not need much "teaching."

The things needed for the training are books, magazines, and newspaper articles. They should be things of worth that can be so recognized by the pupils. They should be well written,

interesting and suited to the pupils' comprehension. When these are supplied, the things further needed are more books, more magazines, and more well-written sensible newspaper articles. And after these,—still more.

This does not mean so great an expense to the school city as may at first sight appear. Twenty-five thousand books will cost little as compared with the enormous waste that now results from trying to teach history, geography, literature, civics, science, etc., without the indispensable voluminous reading materials; and books can be circulated from school to school so that a purchase of one book per pupil may well mean during the year a reading of ten books per pupil.

At the present time the reading work of the San Antonio schools is struggling in the quagmire of pedagogic methodology. Note the order of procedure in developing a reading lesson as presented in a circular sent out to all of the schools as directions for the work:

“Order of Development in Reading.

1.—Word drill for pronunciation:

- (1) write words upon the board
- (2) number them
- (3) syllabify
- (4) accent
- (5) mark with diacritical marks.

2.—Study period with ‘a motive’—for thought mastery.

3.—Interpretation or thought getting:

- (1) pivotal thought first
- (2) modifiers second
- (3) To be conducted in either of two ways—teacher reading and questioning for the thought or pupils reading silently, closing books, and teacher questioning. N. B. Both methods should be used from time to time as the subject matter demands.

- 4.—Study period for practice in getting thought and for word and phrase mastery.
 - 5.—Expression or thought giving:
 - (a) articulation exercise
 - (b) position of pupils in front of audience with head up, chest expanded or lifted, (chin in), both feet flat upon the floor and book held easily, either with one or both hands.
 - (c) audience—the main body of the class and the teacher. N. B. The teacher should be across the room from the reading section.
 - (d) Correction of errors—kindly criticism first and then attention to errors.
 - (1) If emphasis or inflexion is at fault, question for the thought.
 - (2) If word mastery is at fault, go back to word list and help through phonics.
 - (3) If phrase mastery is faulty have silent reading for concentration.
- N. B. In some cases errors can be corrected only through imitation.”

Every piece of reading matter taken up is chopped to bits. It is not read through rapidly and silently and enjoyably for the sake of the ideas, the inspiration, and the emotional and aesthetic exhilaration and stimulation. This is not found in the list at all. The piece is dissected, the various parts torn asunder; its life destroyed by too much teaching elaborateness. The method laid down in this circular will never develop “ease of reading, rapid reading, and ability to get all the ideas” as one reads rapidly and silently through a selection.

The teachers are not to blame. They have had to spend a full year on a textbook that any normal child rightly trained can read through in twelve or fifteen hours. Looking at it from the pupils' point of view the material is not enough to give them sufficient practice for acquiring vocabulary, or facility of reading; so the teacher has to help develop all the details. On the

other hand, with such a meager material for a year's work, the teacher is practically forced to develop elaborate ways of wasting time in order to use it all. To permit the purchase of one supplemental reading book by each pupil each year is a help; but it goes only a little way. A man who has only one loaf for a month's food-supply is not greatly helped by a second loaf. The situation is a tragic one for both pupils and teachers.

We do not wish to be understood as depreciating word-study, phonics, pronunciation, diacritical marks, etc. Each of these is necessary, and each has its proper place. But its place is but preliminary and incidental to more important things.

To take care of and to circulate systematically and economically needed reading materials, the city should have a central depository and circulating facilities. At present the small circulating school library is in the hands of one of the building principals. But when the matter is developed, it cannot be handled in any such simple way. The school board will do best perhaps to enter into a co-operative arrangement with the city library whereby it may serve as depository and also care for the circulation of the books. **The books should be selected by the teachers and supervisors and purchased by the school city.** The librarian can co-operate in highly valuable ways in the selection of the books. But at bottom the selections must grow out of the educational work of the schools. Ultimate responsibility for the selection of every book used in the schools must rest upon those whom the city has made responsible for education.

SPELLING.

In the elementary schools of San Antonio nine percent of the total time is given to spelling. The city's annual investment is in the neighborhood of \$40,000.

The average amount of time given to spelling in the cities of the United States is seven percent of the whole. The extra two percent given to this work in San Antonio costs the city an extra \$9,000. This might well be saved and devoted to other needed things.

In order to ascertain the efficiency of the results in San Antonio in spelling a test that has been standardized was given. This test consists of one hundred common words practically all of which are used by children in the first grade in their oral conversation, but which are difficult enough as a test of grammar grade or even high school spelling ability. This same test has been given in about fifty cities of Illinois. The relative standing of San Antonio in each of the grades as compared with these fifty cities is shown in Chart I.

SPELLING ABILITY BY GRADES.

	Grade III.	Grade IV.	Grade V.	Grade VI.	Grade VII.
100					Q-III 5
				6 13	M 4 2 5 12
90				Q-III 2 15 21	Q-I 26 13 19
				M 9 11 13 12 5	33
			Q-III 18 15	16 8 33 7 26	21
				Q-I 3	
80			M 6 14 17 2 3	17	
			4 2 5 24 22 27		
			2 13		
			Q-I 26 9 12 16		
		19 1 15			
		13 5 3 7			
		Q-III 26 6 18			
		16 17 2 14			
		12 4	8		
70		8 33			
	3 26	M 22			
	14	24 9			
	19 3 15		21		
	27				
60	18 5 16	Q-I 27			
	Q-III 7				
	33 4 12 2				
50	22 17 6 24				
	8				
	M 9				
40		21			
	Q-I				
30					
20	21				

The heavy lines marked M for each of the grades represent the average spelling ability for these Illinois cities. The upper thin line marked Q-3 in each case is a measure that divides the upper half of the cities into two equal portions. The lower thin line marked Q-1 divides the lower half of all of the cities into two equal portions. Between Q-1 and Q-3 are to be found the middle fifty percent of all of these cities. With this standard as a background the standing of each of the various buildings in San Antonio where the test was made is shown. Each number represents the school of that number. Teachers and laymen can read from the chart the average standing of each grade in each school, as compared with these current standards of practice found in Illinois. In the chart, seventh grade in San Antonio is compared with the Illinois standard for eighth grade. For the other grades the Illinois standards have been reduced so as to fit them to a seven-year school organization. That is to say, sixth grade in San Antonio is compared with a point a little below seventh grade in Illinois; and likewise with the others.

In this comparison, San Antonio stands rather high. When we observe the amount of time given to the spelling, especially if we take into account also the additional time given to phonics and word-development, we should certainly expect San Antonio to attain high rank.

How well does one need to spell? One spells in the normal course of adult life only when he writes. Naturally he needs to spell only the words that he will use in his writing; especially that which is intended for the eyes of other people. For most people this will be in their personal letters, in an occasional brief business letter ordering goods or acknowledging receipt of goods, in memoranda, or something of the sort. The list of words used in such personal and business letters is not large. Mr. Ayre's studies indicate a number between 2,000 and 3,000, most of which are the easy words of every day life which people do not seriously misspell, if they have much writing to do. Probably the best list yet made is the one based upon children's actual writing by Professor Jones of the University of South Dakota. This list of 4532 words used by children will cover

all the necessary spelling needs of ninety-five percent of our adult population. If only the words of this list that are actually missed by children were taught and if only the pupils were taught who actually missed the words, then the spelling labors of San Antonio elementary schools might well be cut down to one-half or less of the time that is now given to it, and yet serve all of the practical needs of this ninety-five percent of the people. It does not matter if they do misspell a word in their writing now and then. Their writing is for the purpose of conveying thought to somebody else. If misspelled words are so rare as not really to interfere with this conveyance of thought, no real harm is done. The schools do not strive after absolute perfection for the masses of the people in far more important things than spelling. It is therefore rather a work of supererogation to strive for such perfection in the mere spelling of personal letters.

We are here discussing general popular education, the only thing that the elementary schools are expected to take care of. We are not here discussing the technical vocational spelling that is absolutely indispensable for certain highly specialized vocational classes. A stenographer, and especially a proof reader, should be able to spell almost any word that comes along. Book-keepers, accountants, copyists, clerical people in general, newspaper compositors, etc., need for their special vocational purposes to be able to spell with a high degree of accuracy a wide range of words. But training to this degree of perfection is specialized vocational training.

When the public schools are accused of not teaching people to spell well enough, the thing usually meant is that these relatively small vocational classes are not taught well enough. This is generally true. In the attempt to bring the total mass of the population all to the same level, the result is general mediocrity everywhere, and a failure to reach that high ability which is actually needed by certain clerical vocations. The defect is not to be remedied by forcing everybody to learn to spell as well as needed by compositors, proof-readers and stenographers. The general population is to be brought up to that level which is needed by the general population; and then the

specialized workers only are to be given more, so as to bring them to the demands of the vocational level. This additional work is a task for the high school commercial course. It is distinctly not a task for the elementary schools, which are ministering to the general needs of the population.

Will the business and professional men of San Antonio indicate the frequency with which they have had occasion to use each of the following words in their correspondence or other writing during the past year? These words are taken from a list of about 1200 words that are studied in the sixth grade of the San Antonio schools.

antithesis	vagary	beneficiary	ascetic
equipage	petulancy	Sabbatarian	hauteur
nugatory	fulgency	guillotine	aureole
scuppernong	plasticity	monocle	phonetics
impecunious	percussion	solecism	binnacle
acquiesce	demurrer	colporteur	embrasure
laminated	lexicographer	cuirass	thespian
colonnade	ceramic	imbroglio	homonym
syllabic	javelin	phrenology	stultify
celerity	argosy	coeval	panoply
cedilla	orthoepy	glossary	lethargy
egregious	lapidary	piquant	verbosity
cauterize	pagoda	pectoral	mnemonics
labial	landau	aspirate	maelstrom
seraphic	chenille	fealty	chancery
coalition	sibilant	fusillade	myriad
buccaneer	acerbity	suffusion	acclivity

Many of these words are unintelligible to adults. Practically none of them are in the active writing vocabulary of adults in general. The 1200 words in the spelling book taught to the sixth grade are just as unintelligible to the sixth grade pupils as this selection from them is to adults in general. Very few of them are in the active writing vocabulary of the children. It is a waste of time, labor, and money, to teach the spelling of words that are not understood; or which are not used in one's written

work. Children in this grade are expected to do dictionary work by way of finding the meanings of the unfamiliar words, and then to use the words in artificially constructed sentences by way of proving that they know the meaning of the words. This type of dictionary work, this method of galvanizing words into the semblance of life by using them in sentences, this spelling of words that are mostly unknown and almost wholly alien to one's writing vocabulary flies in the face of every sound principle of educational method.

How does one learn the **spelling** or words? Let us mention six things:

(a) By much reading. One's fundamental understanding of how words are spelled is mainly developed through frequent seeing of those words in one's reading. When one reads in the full way that seems desirable in a well-developed system of education, the mental picture of most words is so indelibly fastened in one's mind that in one's writing one will easily and naturally without particular thought give to most words the correct spelling form. There are large numbers of individuals who need very little spelling training beyond this,—after the primary grades are passed. It is less effective with others.

(b) By watchfulness over one's spelling as one writes his letters, reports, compositions, etc. If pupils can be brought to a habit of watching their writing so as never to put down a word unless there is at the same time confident judgment that their spelling is correct, then there are very few words that will get by the student. This should be the main purpose in teaching spelling. The purpose is not that pupils be able to spell long lists of words without making mistakes; but rather the habit of looking intimately into the structure of the words they use in their writing so as to be continually watchful and continually confident as they write that their spelling is correct. This habit of watchfulness is to be developed by requiring that, in every letter, report, composition, etc., every word written shall be spelled correctly. The requirement should be absolute with no exceptions permitted.

(c) The habit of going to the dictionary or to their word-list whenever there is any doubt in their minds as to the spelling of any word which they are using in their writing. Such dictionary work need only be supplemental and occasional. It can be enforced by requiring that every piece of written work shall be rewritten entirely if it contains so much as a single misspelled word. Such a requirement will engender the habit of scrutinizing the words as they are written and of going to the dictionary or to their word-list when there is any doubt. Merely to have pupils erase and correct misspelled words in their papers misses the purpose altogether. The right or wrong spelling of a single word in a composition is in itself a matter of little moment. The significant thing is the **habit** of looking into all words written, and the **habit** of putting down no word until there is confident judgment that it is being spelled correctly; and the **habit** of going to the dictionary in case of any reasonable doubt.

(d) The systematic supplemental study by the pupils of all the words which they miss. This means that pupils who do not miss words in their written work are not to be required after the earlier grades are passed to study spelling in the spelling classes. Just as medical treatment is not given those who are not ill, so supplemental spelling treatment is not needed by those who make no mistakes in their writing. Just as the nature of the medical treatment needed by an individual is indicated by the nature of the trouble, so the nature of the spelling drill and training needed by those who need the teaching is indicated by the particular trouble involved,—that is to say, by the particular words that are missed, or before which the pupils are doubtful. Treatment must be specifically adapted to the nature of the disease and not be simply a general dosage with the hope that something out of all that is administered will reach the seat of the difficulty. General dosage in spelling is just as irrational as general dosage in medicine.

(e) Phonic training in the primary grades. In the beginning the phonics and the spelling need to be more or less con-

sciously isolated so that children will get the spelling of the simple basic vocabulary that they use.

(f) Word-study. At higher levels in the elementary school and even in the high school, there should be certain word studies of the rapid preliminary type dealing with prefixes, suffixes, synonyms, homonyms, etc. The actual understanding of these matters of word-study will necessarily be developed in its fundamental aspect in their wide reading. The preliminary studies are to make them conscious of word-elements. The mistake should not be made, however, of expanding necessary studies of the preliminary type into abstract elaborate didactic disciplines. This is done in the word-study in the spelling classes of the seventh grade where they give a full year to prefixes, suffixes, synonyms, homonyms, etc. Such work is abstract, relatively meaningless, and, after the preliminary ideas are got by the pupils, relatively profitless.

Who is the good speller? It is one who has acquired the habit of watchfulness over the spelling of words that he writes. Bad spelling is not generally caused by one's not having studied lists of words. It is generally because he is not watchful, and has not the habit of being sure of every word as he puts it down and of looking up every doubtful one. If one is so stupid that he cannot be brought to such a habit of watchfulness in connection with his written work without an undue amount of labor on the part of the teacher, then he is one who never will occupy a clerical position that will require good spelling. The latter will be no more a necessity to him than Sanskrit to a coal-heaver. Sensible business men should not permit their money to be spent in the useless task of trying to give an accomplishment to those who will not use it.

Probably not less than half the time now devoted to the teaching of spelling and not less than half of the \$40,000 now invested in the teaching of spelling could be saved and invested in other needed educational work,

VOCABULARY AND PRONUNCIATION.

In connection with both the reading and the spelling, much valuable time is now wasted on diacritical marks, dictionary work, and "using words in sentences." The purpose of these pedanticisms appears to be teaching the **meaning** of words and the **pronunciation** of words. The methods used, however, are not the kinds that can possibly succeed.

How does one learn the **meaning** of words? This is learned from frequently meeting those words in their natural setting in oral, written, and printed speech where they are carrying in sentences their natural freight of meaning. It is through hearing words used in meaningful speech, and through voluminous reading. Occasionally there is a word the meaning of which is not sufficiently clear from this hearing and reading. One must occasionally, therefore, go to a dictionary; but only when the thought of the **sentence** refuses to convey the meaning of the **word**. This is the only legitimate use of the dictionary, on the side of meaning. One does not learn the meanings of words from a dictionary. He learns them mainly from their setting in the living speech where they are met with. Even when he goes to the dictionary for a word he takes with him a knowledge of the general current of thought in that reading, so that the dictionary meaning of the word is merely to fill in a gap in the entire current of thought. A word is not really a part of speech when it is not being used for saying something. It can really be studied only as it is a part of actual speech, carrying its usual load of meaning. The dictionary work should always be supplementary, and used only as a last resort. Moreover, it should be kept in mind that children can get the thought of their reading if it is the sort adapted to them without knowing the meaning of every word they meet with. The meaning will be gradually bourne in upon their minds from a frequent meeting with the words in their reading.

How does one learn the **pronunciation** of words? Clearly the fundamental method of learning the pronunciation of words is the hearing of words used by one's parents, friends, associates,

and teachers. Properly developed school work should involve a wider vocabulary than the usual home and therefore the hearing of the correct pronunciation of more words than one would normally hear anywhere else. Naturally the school therefore expects to do a considerable part of this work; but pronunciation is learned chiefly through this unconscious imitation. Occasionally children bring to school faulty pronunciation of words learned outside which require correction. Sometimes the pronunciation of a word is required which has not been heard. There needs, therefore, to be certain preliminary phonic training as to the proper sounds of the various letters and the meaning of diacritical marks. One must then resort to the dictionary occasionally for verifying or correcting one's pronunciation. This needs to be done only in cases of error and of doubt. It is to be done only by those who make mistakes; and in connection with only those words that involve mistakes. As in the spelling the principal thing is the development of a **habit of watchfulness over one's pronunciation**, and a habit of looking up doubtful words. Each pupil should have a list of the words that experience has shown him he needs to watch. These are all that he needs to study.

Taking long lists of unfamiliar words, having them looked up in the dictionary, syllabified, harnessed up with diacritical marks, spelled, and "used in sentences" is a pedantic educational absurdity that is costing a huge amount of wasted time and labor on the part of teachers and children and many wasted thousands of dollars on the part of the taxpayers each year. The schools are costing the city \$600 an hour for each hour they are in session. In the elementary schools certainly not less than one-half hour each week is wasted in the labors above referred to. This amounts to a goodly sum each year which if devoted to needed reading matter would accomplish infinitely more.

HANDWRITING.

San Antonio elementary schools devote 7.5 percent of their total teaching time to handwriting. The average amount of time given to the subject in the cities of the United States is 5.8 per-

cent of the total time, or 1.7 percent less. San Antonio's current annual investment in handwriting is around \$33,000. If the percent of time given to the subject were the same as that of the country in general, the saving would be at least \$7,000.

In the quality of the handwriting results obtained San Antonio is doing just about average work. The recent handwriting survey of American cities by Professor Frank N. Freeman offers the necessary means of comparison. The handwriting tests made in San Antonio were uniform with the tests made in thirty-two other American cities including Boston, New York, St. Louis, Cleveland, Milwaukee, St. Paul, San Francisco, etc. The relative handwriting quality of these cities,—average for all of the grades beginning with the third,—is shown in Chart II.

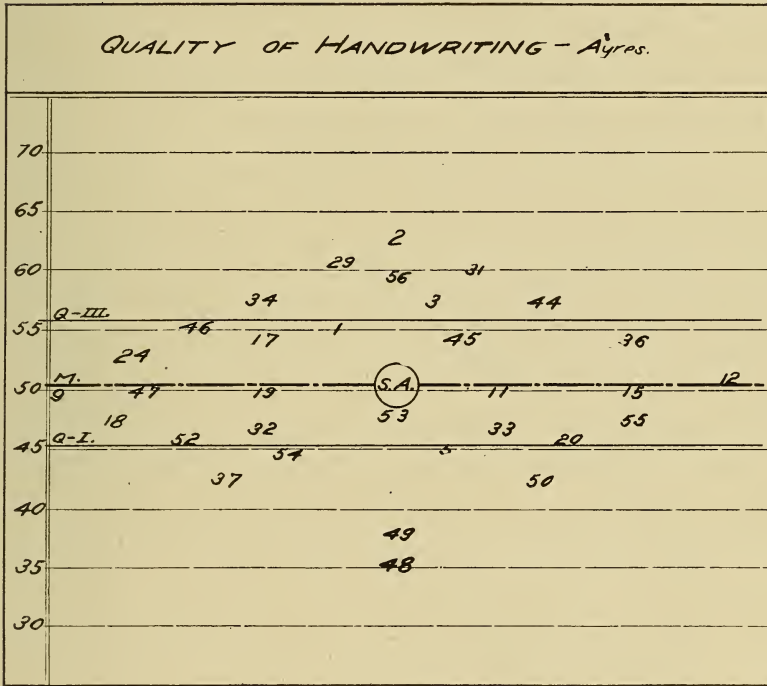


Chart II.—Showing average quality of handwriting in 33 American cities: New York, Buffalo, Omaha, South Bend, El Paso, Canton, Davenport, Denver, Detroit, Tacoma, Syracuse, Yonkers, Savannah, Seattle, etc. The position of the numbers represents the relative positions of the cities on the Ayre's scale. San Antonio is represented by S. A.,—exactly average standing.

The heavy line marked M shows the medium grade of work done in these cities as measured on Ayre's scale; the lighter line Q-I marks the middle of the lowest half of the cities; the upper light line Q-III marks the middle of the upper half of the cities, on the scale. Between Q-I and Q-III are to be found half of the cities of the country. One quarter of the cities are so successful as to stand upon the scale above the line Q-III. One quarter of the cities are doing work of such poor quality as to fall below the line Q-I. It will be observed that San Antonio is quite near to the average. It is doing work that compared with that of cities in general is neither high nor low. For an extra amount of time given, it is getting an average amount of result, on the side of quality of writing.

Speed of writing in number of letters per minute as compared with that in the other thirty-two cities is show in Chart III.

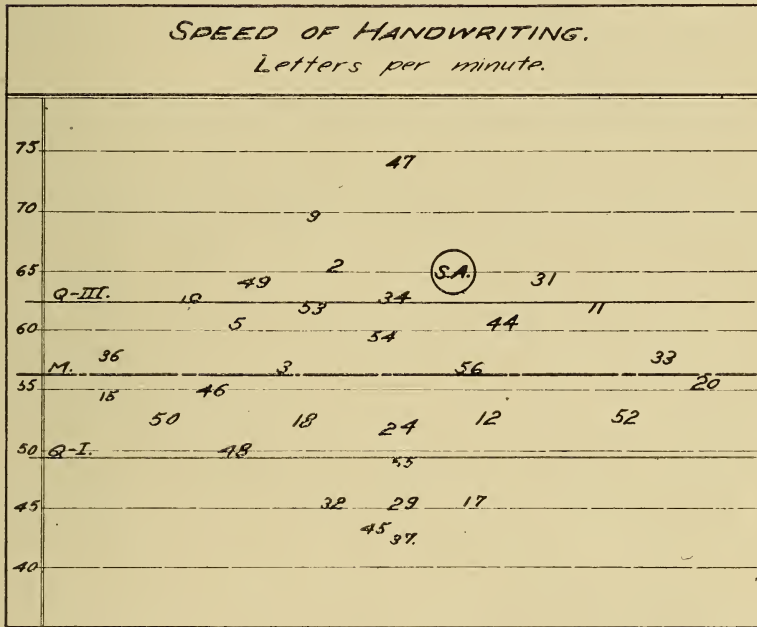


Chart III.—Showing speed of handwriting in 33 American cities in letters per minute. Each number represents a city.

The city stands high in the matter of speed. It is possible, however, that the examiners were somewhat generous in their allowance of time. For this reason before being satisfied with the figures here presented, the city should make another speed test under conditions that would not permit variations in the amount of time used in different buildings. The chart shows a standard for speed determined by the general practice of cities through the country in terms of which San Antonio can measure herself at any time she likes.

Charts IV and V show how the grade averages in San Antonio in quality and speed compare with corresponding averages in the thirty-two cities. As in the spelling, the seventh grade in San Antonio is compared with the eighth grade in these many cities, and the average standards properly equated for lower grades.

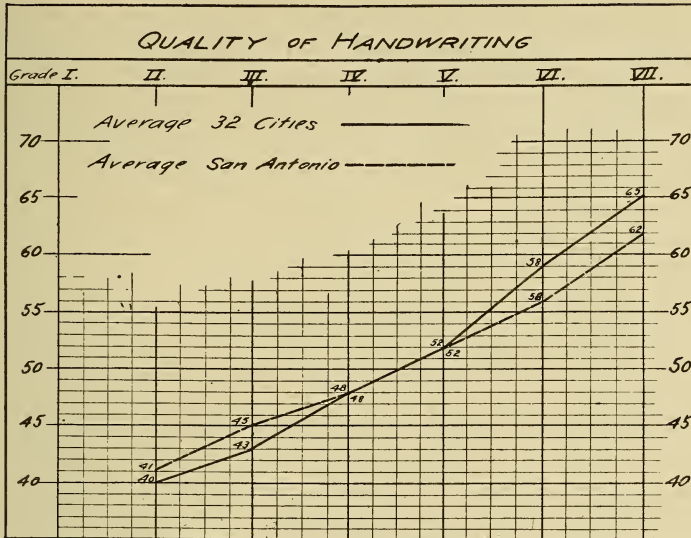


Chart IV.

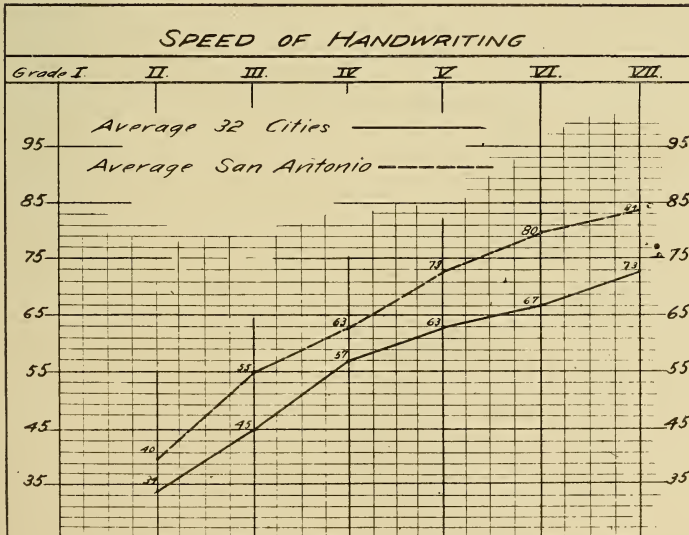


Chart V.

It is valuable for the supervisory officials of San Antonio to observe the difference of standing in handwriting quality and speed in the different buildings in the city. Chart VI shows the variation in the fifth and seventh grades. The standards used as background for the comparisons are those of the thirty-two cities.

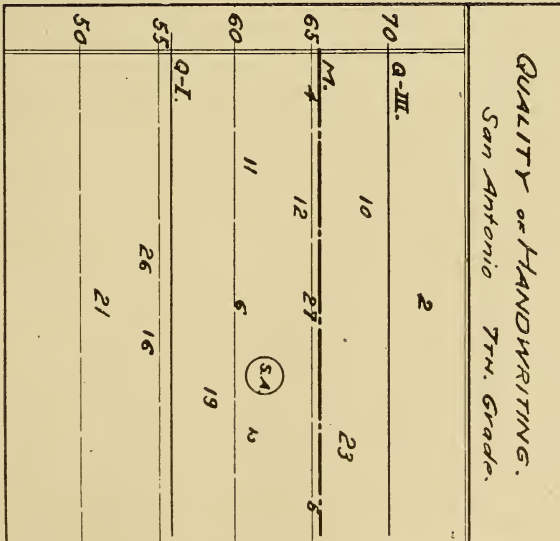
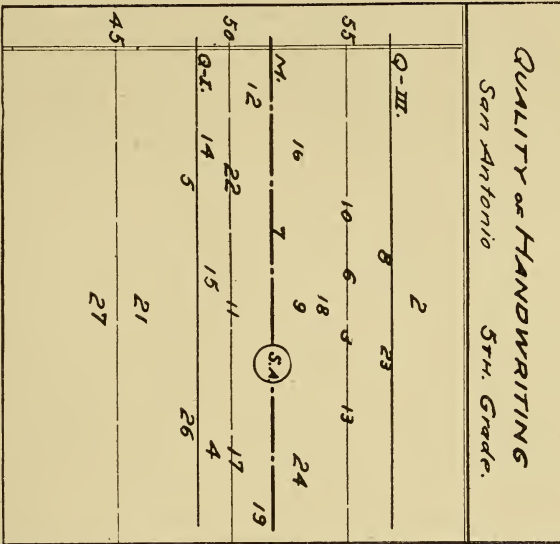


Chart VI.—Showing the relative quality of work done in different ward buildings in San Antonio. The numbers correspond to the various buildings. The average for the city as a whole is shown by S. A.

Chart VII shows corresponding differences of schools on the side of speed. The number of letters written per minute in certain schools is remarkable. Teachers in the slower schools ought to visit them and see how it is done. The results ought first, however, to be verified by a more carefully controlled test.

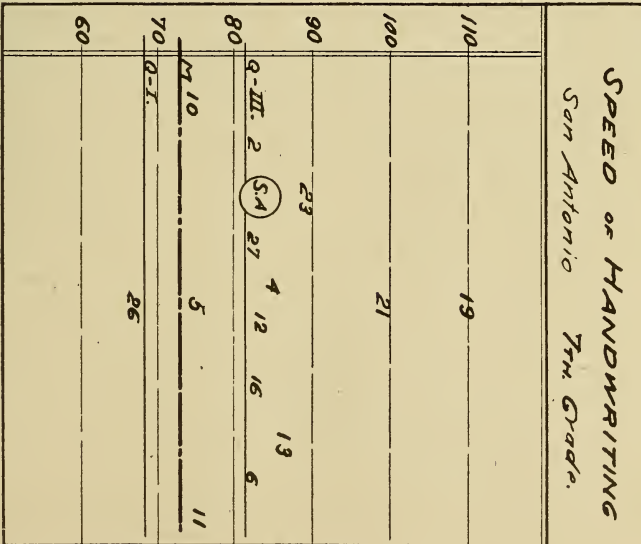
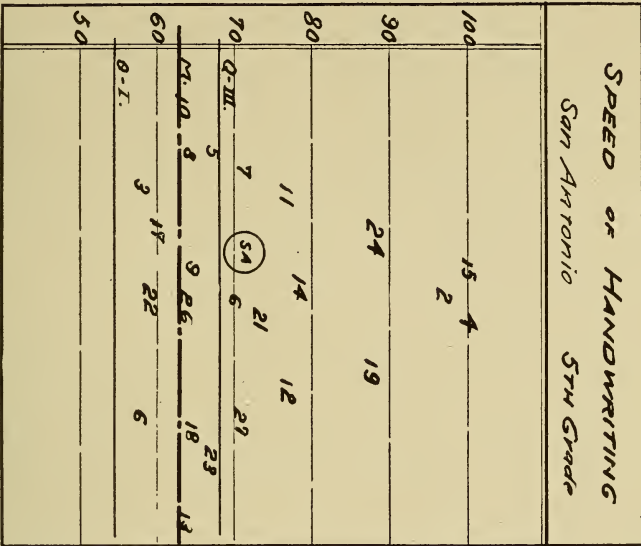


Chart VII.—Showing the relative rank of the various San Antonio buildings in speed of handwriting.

For the formal training in handwriting the city has adopted an excellent system. Although there is no special supervisor to look after the writing, yet it appears that the teachers are informed as to the mode of procedure. The city has not, however, set up speed standards or quality standards for the various grades. Such standards are desirable for defining the ends of one's labor. Naturally the standards would be for the average of classes and not for the individual attainment of pupils. Moreover, such standards would naturally be different for different buildings in the city.

People should be taught at public expense to write only so well as they need to write for carrying on their various daily affairs. This means that clerical people, bookkeepers, accountants, clerks, copyists, etc., should be trained to high quality and high speed. At the other end of the scale we have unskilled labor, factory workers, farmers, carpenters, plumbers, blacksmiths, seamstresses, laundry workers, housewives, etc., who need only to write a simple plain hand with only a moderate amount of speed. They do little writing and if the school expends time, labor and money in bringing them up to a high standard, they will naturally sink back to a relatively low level because of their little need of this accomplishment. The city is justified in spending money for the actual educational needs of the whole population. It is justified in spending more to teach handwriting to certain classes of the population than to others. It is not justified, however, in spending money on any class for a quality of writing in excess of real social needs. The city is now doing this. Democratic education does not mean identical education for everybody. It means only giving everybody an equal opportunity for the education which he actually needs. While this will mean expending more money upon one social class for handwriting than upon a second class, the matter will be balanced by spending more upon this second class for certain other things which they actually do need and less upon the first class for those things.

In the elementary schools the fundamental training in handwriting should be the practice that the pupils get in connection

with all of the written work that they do. The work in the various subjects should involve a fairly generous quantity of paper work,—the solving of problems, the writing of reports on various topics, compositions, letters, outlines of work, etc., etc. All such written work of pupils should be kept in permanent note-books. Every paper written should be in good form, whatever the subject. The pupils should be required to re-write it if it is not in as good form as he has done in previous papers as shown by those in his note-book. The best that he has done is the standard to which he is to be held. When held to that standard he will every once in a while go beyond it, and produce a paper that is still better. This better one becomes then his standard. And so he climbs on the basis of his own work step by step to a standard of quality that is considered satisfactory by the teacher. From that point forward in that particular grade all that is required of him is that he keep all of his written work to that one standard for the rest of the year. This plan permits different standards for different pupils within a class. It permits a standard that the pupil can understand and appreciate and know is actually attainable for all time. Standards of writing developed in this way should be accumulated and kept permanently within the class-room as objective standards that can be examined by the children of that grade for a comparison of their work with what is deemed desirable for that grade. These permanently kept standards should be those that have been employed for various types of pupils ranging from those poorest in their writing to those that are the best. They should be ranged in a series in such a way that any pupil can see whether his work is most like that at the poor end of the scale, or whether it is like that at the best end of the scale.

When all of the written work of the pupils is used in this way as the basis of their training in quality of writing, much, even most of the writing drill that is now given can be dispensed with. Certain preliminary writing teaching is absolutely indispensable in the lower grades. A very small amount of this preliminary training perhaps needs to be continued throughout the grades for the sake of keeping fresh in mind the elements of

handwriting, ideas as to speed, movement, letter formation, quality of line, spacing, etc. It can be safely said, however, that half of the time that is now given to the writing drill beyond the primary grades may well be dispensed with **if only all of the paper work of the pupils is made the basis of their training in handwriting.**

The writing needed for the class papers of the children is really as good as will ever be needed for anything that ninety percent of them will ever write. The majority of the children in school after they leave the school will write nothing more than letters, certain personal accounts, memoranda, etc. The writing need be no better nor any more rapid than that needed for the actual paper work in the school classes. If, therefore, practically all of the special writing drill work of the grade above the primary were dispensed with and the pupils held only to careful work in their current paper work, enough writing training would be given to the majority. Most people do not need to write very well. The main thing is the habit of writing carefully and plainly.

A small percent of the pupils need to be thoroughly drilled in speed, quality, proper movement, and all of the other things. Writing is for them a vocational need. Training for this writing is special vocational training. It is not necessary that all of the children shall become specially skilled in the elements of clerical vocations simply because a few are in great need of this skill. In the elementary school it is not generally known into what vocation one is to go. For this reason it is not possible for the elementary schools to begin to give specialized vocational training in any great measure. The elementary schools can only take care of the usual needs that are common to the entire population. This means the development of a good plain hand of moderate speed in connection with the general paper work. It is in the high school where students should receive their special vocational training, some in one field, some in another. Those who are to go into clerical vocations should be given most rigorous and intensive handwriting drill in the high school commercial department. The thing is not now done. It should be, however,

so as not to force the elementary school to do a wasteful quantity of vocational drill work for classes that do not need it.

Schools are often accused by business men of failure to bring up the writing quality of the pupils to a sufficiently high standard. This accusation comes because the pupils who are going into clerical vocations are not brought up to sufficiently high standards. The attempt to bring all to the same standard necessitates one that is too low for one type of pupil and much too high for another type. It means failure and inefficiency of the schools in taking care of the needs of the clerical pupils, and it means waste of time and money in taking care of the needs of other much larger classes. For the relatively small group of people that enter clerical vocations the business man's accusation is justified. For the eighty or ninety percent of the people who do not go into such vocations, an exactly opposite complaint is the one that would be justified.

GRAMMAR, LANGUAGE, COMPOSITION.

The current annual investment in these matters in San Antonio is about \$50,000.

What is the purpose of this investment?

It is that the people growing up in San Antonio shall not make mistakes in their oral and written speech. It has no other purpose. One's fundamental grammatical habits are learned through one's social associations. On the side of positive help in their speech or writing, grammar can do little or nothing. Its sole value is the negative one of aiding in avoiding errors.

What mistakes do the young people growing up in San Antonio make that the city should think it advisable to invest so extravagant a sum in corrective grammar? It appears that the city is teaching the grammar without having made any attempt to find out. At present San Antonio is simply administering a good-sized dose of grammar from every bottle in the grammatical pharmacopoeia without any previous diagnosis of actual community needs, simply hoping that some of the things will find the right spot. Perhaps some of them will; but it is a tremend-

ously wasteful way. Many of the things given certainly will be of no service and time has been lost which ought to have been devoted to useful matters; and children are driven from the schools by maddening abstract useless things before their essential education is complete.

Until diagnosis is made of the kinds of errors that need grammatical treatment the city might do well to borrow the results of such a diagnosis made of conditions in Kansas City, Missouri. It was there found that grammar-grade children in oral and written speech made twenty-seven kinds of grammatical errors. With the exact errors known, a city can easily choose those portions of grammatical knowledge needed for the purposes of correction; and the city can know equally well just what portions of grammar need not be taught. The city can choose the kinds of things needed for correcting errors made by children who come from homes in which a good quality of language is spoken. They will find different kinds of errors and needs of different kinds, in the case of children of the Mexican schools. Still different will be the errors and the grammatical needs of the Negro schools. The present method of administering the same grammar to everybody is no more wise than for a physician to prescribe the same series of medicines to all people however different be their diseases. The schools should clearly note the purpose of the grammar, teach just what is needed, teach all that is needed, and teach no more than is needed. From the Kansas City study it appears that the grammar classes might dispense with a fairly large portion of the things that are now being taught.

The schools of San Antonio should not only know the nature of the errors in the speech of the children and of the adults of the city and the proper corrective grammar that needs to be given, but they should also see that the two are brought together in the way to secure the correction of the trouble. The grammatical knowledge in the children is for the purpose of helping them to watch their own language and for guiding them in their efforts to keep speech and writing correct. **This grammar takes effect only as the pupil uses it to keep his speech correct.** Educa-

tion is accomplished not in the abstract learning of the grammatical facts, but in putting them to practice. If the learning of the school is not closely related to practice, it quickly evaporates and disappears; and the work is mostly lost. The time and the money and the labor are wasted. One large criticism of the grammar work in San Antonio is that it is not brought into such relation with the language uses of the children as to enable them to put it into practice. Each thing is simply taught in the abstract at a certain time of the year because it is laid down for that time of the year in the course of study, and is met with at that time in the textbooks. It is not brought up in connection with the troubles to be corrected just at the time that these troubles occur; yet this is the time and the only time when the grammar can take effect in such way that it will accomplish its purpose.

Naturally certain preliminary grammatical teaching is necessary, which will cover lightly and rapidly all the various necessary portions of the subject. When the schools use materials suited to the preliminary type of teaching, and suited to the degree of maturity of the children, they can cover a great deal of ground in a comparatively short time. It is necessarily superficial. It is unapplied. It is merely an over-view of the whole subject to provide vocabulary, perspective, and foundation. Probably one lesson a week to the subject so organized for preliminary purposes is sufficient. Beyond this the training should consist mainly of application by the pupils, the teacher's work being simply for stimulation, encouragement, diagnosis, prescription of actually needed corrective drills, checking up the expression of the pupils so as to hold them responsible for making application of their grammatical knowledge, etc., etc.

How and where can children make application of their grammatical knowledge so as to drive it home? Children recite in all of their subjects. They need, therefore, to express their thoughts clearly, effectively, and correctly in all of these subjects. They should be held for correct grammatical oral speech in all their subjects. This gives them very large opportunity

for applying their grammatical knowledge and for fixing good grammatical habits.

Let us remark parenthetically that this does not necessarily imply that all recitations are to be in complete sentences. In natural conversation elliptical expressions are very common. It is only an artificial pedanticism that will freeze up the natural flow of the children's speech by insisting on the elimination of natural ellipses and the use of complete sentences on all occasions. Elliptical speech is grammatically just as correct as any other; and since people are going to use it when they go out into the world, they may as well get practical training in the correct use of it in the schools.

Much of the recitation work, however, will consist of connected oral discourse. In history pupils should stand and relate in connected manner the series of events making up an entire historical movement. They should often talk two, three, or five minutes connectedly. In geography work rightly taught, in civics, in literature, in applied science, in industrial studies, etc., where schools are supplied with a proper abundance of reading material, it is possible to have individual pupils bring to the class a great wealth of facts unfamiliar to the other members of the class which they will report orally. These reports constitute the very best means of training in oral expression. Naturally here the complete sentences are the only ones that are proper and natural.

In most of such recitations the thought of the subject under consideration is the main thing; the language is but the instrument of expression. The attention of the class must not be diverted from the principal line of thought. When the reciter therefore, makes a grammatical mistake the main recitation topic must not be temporarily side-tracked and attention given to the individual error of a single pupil. This is to keep the entire class waiting while individual attention is given to an error that pertains only to the speech of the one pupil. Such dropping of the class work wastes the time of the class and produces an unwarranted confusion of dissimilar threads of thought. The reci-

tation topic has the right-of-way for the class, and it should not be side-tracked for anything of lesser importance.

During the recitation the pupil must do his own watching over correctness of his language. This is the only way he can get the necessary practice training that will give him independent power to keep his language correct. He cannot always expect to have an instructor at his elbow to do his grammatical thinking for him. As he recites he must know that his language among other things is being watched by the teacher, and that opposite his name in her note-book any errors that he makes are being set down; and that before the day is over, at least before he has forgotten his recitation, he and the teacher will have a private conference about how to correct the particular types of error that he has made. This after-class personal conference consumes the time of only the pupil who needs the attention. It centers his thought on the trouble when there is nothing else demanding his attention. It helps him to realize that the thing is regarded as an important part of his education, and not a mere recitation incidental. This realization helps him to remember and to keep a closer lookout next time. It also incites him to get clear in mind the necessary grammatical knowledge to apply in time of need. Then after a few victories on his part, the teacher's part is mostly done so far as that particular error goes. From that time on he can do his own watching and fix the thing in irrevocable habit. He is always aware of course that the teacher's ear will continue to note any slip that he may make; as well as appreciate his victories. Since there are only some twenty-five or thirty different kinds of errors usually made, and since most of these require comparatively little teaching and chiefly attention and care on his part, the length of the task need not be such a very long one.

Many students will require very little of the teacher's time. They are the type that come from good homes in which the fundamental education of family associations has accomplished most of their language education. These are the exceptions, however. The majority will require considerable personal attention to keep them to their application of their grammatical

knowledge. The amount of work demanded of the teacher will depend very largely upon the spirit in which it is done. If the pupil feels and knows that there is on the part of the teacher a real interest in his problem, and if as a consequence of this interest on the part of the teacher she is sympathetic and personally stimulating, a little individual attention may go very far. If, however, the teacher's work is impersonal, perfunctory, mechanical; or worse, if she is nagging and querulous, a great deal of work may do but little good. It is economy in the end to employ only strong, sympathetic, inspiring teachers even though a much higher price has to be paid.

But after all is done, even in the best spirit, there will be certain pupils who will not be very successful in keeping their language straight. Let it be set down in their case that nature never intended them to be speakers; and that it is presumptuous for man to try to undo nature's decrees. It is like attempting to make a heavy-weight pugilist or a piano-mover out of a man normally only five feet tall and weighing a hundred pounds. Weakness should be respected. It should be recognized by teachers as a perfectly normal thing. The weak should be brought up to a degree of strength normal for them, but with no attempt to bring them to the strength of the strong. In the plan of grammar-teaching here recommended, the teacher will not be overworked in trying to bring up all of the weak. To twenty or thirty percent of the pupils she will leave a sufficiently recognizable measure of their natural weakness, knowing that they will never enter into walks of life demanding more correct speech. Even among the most cultured classes, if one has ideas to express, and agreeable manner of utterance, good taste in the choice of his words, etc., a moderate amount of grammatical incorrectness is of little or no consequence. This is much more the case with those who are to be unskilled laborers, factory workers, farmers, carpenters, etc.

Another field of application of their grammatical information will be the written work of the pupils. There should be some of this in connection with every subject,—history, geography, literature, arithmetic, science, civics, hygiene, etc. And

this writing should be their composition. In keeping all of it correct, their grammar is applied. It can be done much more slowly by the pupils than oral work. They can revise it and correct it in a more leisurely way. For this reason, pupils can here be held far more strictly responsible for the application of their grammatical knowledge. Every piece of written work that they produce which contains so much as a single grammatical error should be re-written entirely. The main thing is that the pupil be stimulated to keep a watch upon the grammatical correctness of his utterance as he goes along. Merely to erase and correct an error here and there that is pointed out by the teacher does not get at the difficulty. Weeding out incorrectness is not the end in view. The end is the development of a **habit of watchfulness**. The keeping of all papers that the student writes in permanent note-books can be made a great aid in carrying out this work. The other details will be much the same as already mentioned in connection with the oral training.

In certain of the buildings visited in San Antonio, the upper grades in connection with their composition work were preparing outlines, developing subjects in the class, then writing them out, the original draft of which is corrected, and re-written by the pupils. These compositions are then all kept in a loose-leaf note-book,—a highly commendable feature. The thing which seems to be specially needed is a development of such work in connection with the history, geography, physiology, civics, etc, so that these subjects may furnish the thought that is to be expressed, the composition being only the writing up of this thought. This would permit the complete elimination of the present composition class. The composition teacher who was securing the best results that I saw said: "I don't like the composition work. I can't get the children to respond. It does not seem to go. There is something the matter that needs to be solved." This is very true. The thing the matter is that the composition work is done in a class where the children have nothing to say. Such a situation is the worst possible one for expression. The prime condition of expression is the having of something to say. Therefore, most at least of the composition class-time

should be dropped from the program and the time added to the content subjects for written expression there.

What has been said with reference to the technical information and its application in the elementary school is generally applicable to the high school as well. At present one year and a half of the high school English class-work is devoted to grammar and composition-rhetoric. The course prescribes one composition a week in the first year, one every two weeks in the third year, and one a month in the fourth year. The high school grammar and rhetoric training have much the same weaknesses as the grammar training in the elementary school. It is simply taught in the abstract; and this is to miss the whole purpose of the teaching. Composition work is developed in the classes where the pupils have nothing to say. It needs to be developed in the classes in science, in history, in industrial studies, in commercial geography, civics, household occupations, etc., etc., where the children do have things to say, if the work is properly done. Four-fifths of all of the training in English expression in the high school should be accomplished in connection with the oral and written work of the content-subjects.

But high school teachers are specialists in other subjects, we are told; and they refuse to accept the responsibility for training pupils in correctness and effectiveness of expression. This is not what they are employed to do. Moreover, they are not specialists in English and claim that they cannot do it. In this connection three things need to be said: (1) Effective thought in a subject is the thing desired by the special teacher of that subject. To be such, it must be clear, orderly and sequential. If the pupils are successful in thinking through the topics covered, then they must think them through clearly, systematically, and sequentially. The teacher can know that their thinking is of the right type only as they express it in careful, exact, orderly fashion, either orally or written. As they accomplish their work best for him, they attain the best type of expression of that thought. Orderly thinking and orderly expression are different phases of the same thing. Effective expression, therefore, is in fact a part of his work. Effectiveness in expression is the only thing aimed

a in the teaching of rhetoric and of composition in the English classes. The special teachers of content-subjects are better in position to teach it than the English teachers. (2) It is only when the pupils have something to express that conditions are normal for training in expression. Only the content-subjects afford them this opportunity. (3) Special teachers in the high school are apt to look upon their work as subject-teaching rather than the education of youth. Even if convinced of the truth of the two foregoing propositions they will still tend to neglect the expression side of the work as the basis of training. When they do so they are neglecting the thought side as well. Here we find a fundamental task for the high school principal. It is his business to keep the balance true and to keep every kind of work going on in every department that needs to go on in each of these departments. He is employed to hold the various high school teachers responsible for doing the things that they should do. If he is unable to do so in any specific case, then either he needs to get a new teacher for that high school position or the high school needs to get a new principal.

Chapter VIII.

THE TEACHING OF CERTAIN SUBJECTS.

In previous chapters certain subjects have been sufficiently discussed as to both content and method; others have been touched upon insufficiently or not at all. We wish in this chapter to call attention to certain matters that have been insufficiently treated.

GEOGRAPHY.

Geography-teaching in San Antonio is textbook-learning. The textbook used is as good as any upon the market. The plan of teaching is the one that is usual in most cities. The chief difference perhaps is that San Antonio has a somewhat smaller supply of the so-called supplementary geographical reading than the average cities of her size. But on the whole there is no reason to think that the geography results obtained are either better or worse than the average of results in cities in general. To say that the geography work is about average in quality is not to commend it as one would wish. Taking cities in general, the subject is barrenly handled and badly taught. Without stopping to discuss weaknesses observed, let us proceed at once to sketch a better plan. The city's current annual investment in this subject is at least \$30,000. The city can well afford to study methods of making the work more efficient.

The efficiency of the work can be doubled in my opinion by taking care of two things, both of which involve a third: (1) Employing the method of geographic experience instead of the method of textbook learning. (2) Choosing geographical topics on the basis of social needs. (3) The possession of an abundance of reading materials which reveal human situations in a human way throughout the world; and incidentally, enough pictures and other objective materials for showing details of such situations.

Let us illustrate first the difference between experiential learning and textbook learning. It is clear to any resident of

San Antonio that the way for any outsider to learn their city is not merely to have a map and one textbook page of condensed information concerning the industries, inhabitants, commerce, races, the river, etc., of San Antonio. Such skeleton reading is a pretty poor substitute for experience. It can be read and re-read until the words are remembered; but the city will not be known. The way to actually learn the city is to go through the streets, see the people, the houses, the yards, the shrubbery, the parks, the street cars, the business houses, etc., etc., and to mingle with the people in their affairs. One must come into intimate contact with reality. There is no short and brief fifteen-minute book-and-city-map way of doing it, as everybody knows.

In learning the geographic world which lies beyond the horizon, the same thing holds. Teachers do not deal in magic. They cannot by means of a few passes with a textbook bring children to a real understanding of that farther world. The only way really to learn the outer geographic world is still the plain matter-of-fact one of experiential contact with it.

Few indeed can get this through actual travel. But with reading of a proper type it is possible through imagination to enter intimately into the life of the people of distant lands. One can do what they do, see what they see, be interested in what they are interested in, come into close contact in a human sympathetic way with the things of their situations.

Take as an example the teaching of the Mississippi river flood plains. In the brief geography textbooks one can be shown on a map a strip of lands that is subject to floods. The books mention the fact that there are destructive floods which certain years destroy much property and many lives; and tell in a passing sentence of the dikes that have been constructed along the river for protection. The information given is all true. The words and statements may be learned by the pupils and recited upon; but words so learned in the brief textbooks are relatively empty of meaning. They do not arouse interest or human feeling. They can make but a faint impression and have therefore little effect in shaping the mental life of the pupils. The things evaporate and are forgotten. They may re-learn it later in more

effective ways from reading newspapers and magazines in times of flood; and then not forget it. But if the scholastic learning is only textbook learning, there remains almost no residue in memory. The human mind is so made.

Rightly to learn the nature of the flood situation in the Mississippi valley, pupils need to see everything in the same human way in which it is seen by those who live in that region. They need to enter through reading and pictures into the agricultural life of the people of the flood plains. They need to read a concrete human story of an actual rise of the river; to feel the uneasiness of the people as they see the rising of the waters and read of the rain and melting snows in Pennsylvania and Ohio; to feel their anxiety as the waters creep slowly but resistlessly up the dikes; to feel the alarm that runs through the whole region as the waters approach the danger point and threaten to break through; to enter sympathetically into their frantic struggles to get their families, their live-stock, their belongings, to places of safety; then to enter into their grief as they see their farms submerged, their homes swept away, the long year's labor of their hands destroyed; to watch the subsidence of the waters, to note the lands enriched by alluvial silt, to enter into the reconstructive labors of the farmers, etc., etc.

Rightly told, the story pulsates with human interest; feelings are aroused; pupils actually enter into the life of the people. So vivid is the human imagination, when the facts are properly presented, one can actually see the things almost as well as if one were present. In such a story the pupils learn of the nature of the Mississippi river in this region; learn of the dikes, how constructed and where constructed, of the melting snows in northern states, of the rate of rise of the river, of the degree of the destructiveness of the river, of the real nature of silt and the flood plain land formations, etc., etc.,—the same matters aimed at by the bald and experientially forceless statements of the textbooks. Learned through reading of the type here described they are learned once and for all time. Whatever comes through one's vivid experience is not forgotten. The method means less teaching by the teacher, provided the necessary helps are at

hand. Where effectively led by interest, the pupils can be brought to take care of more of the matter themselves. It means an economy of time and labor. And further, what is done is not done in vain.

Naturally the schools must have the necessary books, newspapers, and magazine articles for the pupils to read; and they must have an abundance of pictures. Although the reading is the thing of fundamental value, yet the pictures supply necessary details. It will be found the highest economy to buy these necessary helps, even if something else has to be cut out. A few dozen geographical topics carefully chosen on the basis of the needs of the people of San Antonio, and handled in the way mentioned will give more actual geographic results than several elementary years of dawdling over the geographic textbook. The school city cannot afford to neglect the purchase of an abundant supply of the necessary reading and pictorial materials. To build an expensive school plant such as that found in San Antonio, to employ several hundred high-priced people to work within the school plant, and then not to furnish it with the necessary materials for effective work, is like building an expensive factory, hiring a high-priced body of workmen, and then nullifying their labors by failing to furnish them with the necessary tools and machinery. A large part of the annual investment of \$30,000 in geography at the present time is wasted because the brief, abstract textbook stuff cannot be learned economically or effectively. It is a safe guess that half of the investment is waste. The textbooks present about 600 pages of condensed reading matter, after subtracting the maps and the pictures. This amount of reading can be covered in thirty hours. The whole can be read in six weeks by any bright pupil reading only one hour a day. It is, however, spread over four years and a half. It has to be read and re-read, and then read again, in order to make sufficient impression for recitation purposes. The thing needed is not dawdling over empty abstractions, unlearnable as they are presented. Pupils need to have fullness of reading, fullness of imaginative experience in connection with every topic taken

up. Pupils need to do twenty times the reading that the textbooks present; but of a wholly different sort.

The textbook has an important part to play. The human reading described must be the basis of any real fundamental teaching. But places mentioned in the reading need to be seen in their place relationships; the maps are indispensable helps for keeping these place-ideas in order. Also the reading matter of the texts, if well organized, helps one to a quick summary over-view of the entire field, and serves like the map to give outline and perspective in one's real geographical learning.

The geography teaching in the schools should be in part preliminary and in part functional. The text is about the only thing we have now for the preliminary over-view. It should be covered rapidly so as to get the necessary over-view. There should be little stopping to fix things that are not learned easily in passing. A large amount of learning should be gathered in as one goes along, but for the most part only that which sticks easily. There should be no stopping for intensive drill. To do this is to lose sight of the field as a whole. The preliminary over-view should look to wide vision of earth relations, and not to the details. The study of the latter belongs to the functional portion of the work.

The functional studies should be by topics,—industrial, commercial, civic, etc. The reading work on each topic should be full, intensive, thorough. It should, however, be of the human type which we have described, with the textbook used only for reference. In this functional field should be placed most of the teaching. It is not so now in the elementary school. The preliminary work is much over-done, wastefully over-done. Little is actually organized on a functional basis. The teachers in general have not the practical point of view. After the tools of learning, this is probably the most important subject in the entire curriculum, yet the practical opportunities are neglected.

In the high school the commercial geography is organized from the functional point of view. The amount of reading at the disposal of the high school student is very insufficient, but the instructor has the point of view, and needs only the necessary

material equipment. It would be well if the teacher of commercial geography in the high school were made the supervisor of the geography work in the grammar grades, after the plan now employed by the city in securing supervisors for the grades in German and Spanish. In the high school also human geography of the industrial-commercial-civic type should by all means be substituted for the elementary geology now taught, called physiography. The intensive work given in this subject is wholly unwarranted for city children. In this field of physiography they should read the book rapidly to get the preliminary over-view of it all; they ought to have even more reading than the text now presents,—two or three times as much. But it should be read in a quarter of the time now devoted to the intensive study of the subject. The main thing then should be the study of industrial, commercial, political, and other topics of value, with the geographic situation as a background. Any **needed** details of this background can then be studied as they are needed. It is the only normal way to study them.

HISTORY.

The history taught should likewise have a practical purpose. No history should be taught except that which can be seen to have a purpose. The purpose should be to give one an understanding of the things with which men have to do in this present age; commerce, railroads, manufacturing, city-building, sanitation, literature, agriculture, trade unions, religion, taxation, tuberculosis, insurance, public utilities, quarantine, political states, music, art, political parties, etc., etc. In these and a thousand other things, history shows how present conditions have come to be. It shows better than anything else the influences that have been at work, and which are yet at work. All the history studied should be chosen to give background to such present-day problems.

Naturally the first history given should be of the preliminary type. Its purpose is to give an over-view of the world's history; an over-view of the history of the United States, of the history

of Texas, or whatever country is studied. These various fields of history should be covered through rapid reading. There should be much of this reading. It should throb with human interest. It should be at every stage of the work on a level with the understanding and degree of maturity of the pupils, so that they can read it rapidly. These conditions being met they can cover a large amount of ground, obtain a great wealth of historical experience, take in a great quantity of information the main outlines of which are remembered without difficulty,—and all without the nerve-racking strain upon the teachers incident to the present slow, intensive method of covering the preliminary portion of the study by means of skeleton-outline textbooks. This preliminary reading should be biographical, anecdotal, and thrilling with adventure and conflict and human action. Along with this there will be interwoven the solid outlines and background of history; but these things will not be analyzed out nor studied intensively during this preliminary work. The latter will be rapid and superficial. One must not condemn superficial work when in its rightful place,—nor value intensive thorough work when in a wrong place. There is a proper time for light surface ploughing, and a time for sub-soiling.

While the history textbooks now in use are not altogether suitable for these preliminary over-views, yet taken in connection with certain biographical readings and certain popularized supplementary historical books, etc., they can be made to serve fairly well for the preliminary treatment until books primarily designed for this work can be at hand. The first half of the history of Texas which is now being used indicates better than any of the other texts the kind of reading that is needed for the preliminary survey in every historical field. The one criticism to be made of this Texas history is the brevity of treatment. In proportion as it is condensed it becomes abstract and impersonal and loses in human interest. The result is that it cannot be taken in with sufficient ease of understanding as to permit rapid and copious reading. The work tends to be slowed down. There is dearth of the experiential element. The pupils are expected to learn the text, to memorize all of the details, to give them forth

completely in their recitations, and upon their examinations. In the preliminary stage of learning, such intensive analytic study paragraph by paragraph is altogether undesirable.

In order to use the textbooks for the preliminary portion, they can be read much more rapidly than at present, and then supplemented all along the line with three times as much additional reading from historical readers. Then taking the entire history course, elementary and high school, the whole of this preliminary study should be done in but a fraction of the time now given to it. Children can do it when reading is provided that is adapted to their natures and interest.

The time saved is to be given to functional historical work,—the study of the historical background of the thousand and one present-day conditions. This should perhaps begin in the grammar grades in some degree, and expand rapidly through the high school. History of what we have called the preliminary type might well occupy all the history time in the intermediate grades, most of it through the grammar grades, and but a minor fraction of it in the high school.

A good example of the functional problem is the history of the Texas school system. This is a topic of large present social significance to Texas people. It is very complicated as it now stands. These complications cannot be properly understood except as one studies the influences that have been at work in the state, which have brought the present situation into being. For example, to understand the present enormous school fund of Texas and fully to appreciate it, it is necessary to go back to the provisions for education made by the early Texas Republic; to note the way it was taken care of in the first Texas state constitution and to note how it has grown step by step from these early beginnings to its present gigantic proportions. In the same way, to understand the present situation, it is necessary to take up the history of school taxation in the state, the history of the growth of school buildings, of school attendance, of normal school education, of university education, of agricultural and mechanical education, etc., etc. The problem is a worthy one for the high school. It would be infinitely better than wasting

time over the intensive study of the political struggles of ancient Rome, or the details of the savage campaigns of the Middle Ages.

Other possible topics have already been enumerated. The school people ought to take the list of civic topics, health topics, industrial topics, etc., the understanding of which appears desirable for the community, and provide library reading materials for giving each of them, so far as practicable, a historical background and setting. A practical community should see that the work is rightly purposeful and make this one of the conditions of financial support.

To the specialist in history the preliminary and the functional for his own special labors are one and the same thing. The historian, therefore, almost without exception over-values the preliminary, and over-develops it, and insists that it shall be intensively and thoroughly studied and digested without inquiring whether there is any practical relation to current-day problems. He grows eloquent over the demoralization of history that will grow out of such a plan as recommended here. If such a plan is introduced, unless supervised by superintendent and principal, he is apt usually to continue to overdo the preliminary and to neglect the functional. The most progressive leaders in the historical field, however, are changing their minds on this particular point. The recent National Education Association Committee on the Reorganization of the History Teaching in the High School, recommends that first year of work be a preliminary over-view of all of the world's history down to about 1700. They then recommend a more intensive study, more nearly of the functional type covering the last two centuries by way of showing the historical background and genesis of present-day conditions. These leading historians have come practically to the plan of work which we have above described; not wholly, however, because of the administrative division between elementary and high schools. They probably are not placing the preliminary quite properly, probably somewhat over-developing it, and somewhat under-developing the functional. It is, however, a long step in the direction that San Antonio ought to take in its history teaching.

The San Antonio high school is wastefully overdoing the preliminary historical studies of ancient, medieval, and modern European history. This history is required of all students and takes two years of their time. This amount of history should be required of all high school students; and in their preliminary over-view of the world's history they should perhaps read very much more than the twelve hundred pages of their present textbooks. They should do it, however, in one semester, and not in four. Twelve hundred pages of historical materials, written in a manner suitable for students of the high school age, can be read in sixty hours,—that is to say, it can be read in three school months, if read at the rate of one hour per school day. It is wrongly using such preliminary material to spread it out over two full years. This is prescribing about ten minutes of reading for each school day of the two years. To have it read and re-read, swallowed and regurgitated, is to miss the right use and right method to be employed with the preliminary aspects of the study. Until the elementary school can take care more adequately of the earlier portions of general world-history, leaving the functional studies for the high school, we recommend that the general over-view of the world's history now accomplished in two years in the high school be reduced to one year, covering the same ground. When this same material is spread more thinly so as to cover three semesters, the law of diminishing returns sets in heavily, so that not much more actual results can be accomplished in the three terms than in the two semesters recommended. A fourth semester to this same body of material is mostly wasted unless the whole is heavily supplemented with further historical readings. This is not now done because of the almost total lack of library books of a historical nature, and the lack of library space for so many historical students. The city is now investing in the preliminary teaching of history a fairly large sum. It is a safe guess that under the circumstances half of this is waste. This is not in criticism of the ability of the teachers. They impress one as distinctly capable. Simply, they are using a wrong plan and lack necessary material helps. Blame for such a situation

must be pretty widely distributed. Perhaps there should not be any blame. One should look at the present situation as one stage of growth in which most of the high schools of the entire country are found; a stage of growth through which the high schools must necessarily pass before reaching the next one. The next one is now clearly in sight, and is being pointed out by many of the leaders of our profession. Primary responsibility for taking the next step rests upon those in supervisory authority, whom the city has made responsible for the general plans of the work. Only secondarily does it rest upon the special teachers of the subject. We are not here recommending that the historical course in the high school be reduced to one year. It should be as long as at present. In fact even though impossible under present administrative conditions there ought to be in time history work for every high school student in each of the four years; but after the first year of general historical survey, we would recommend for the other semesters historical studies of the functional type such as recommended by our National Education Association Committee, such as exemplified in certain of our industrial histories, histories of commerce, etc.

An objection that will be urged is that this mode of teaching will involve one in difficulty who is going to college. It may. It certainly will in some cases. There is a good deal of mediaevalism yet in the college field, but I can see no reason why the business men of San Antonio should pay their much-needed money for the continued support of college mediaevalism. Even if they wish to do so, they should remember that the large majority of the high school students of San Antonio do not go to college. The high schools might at least prepare functional and purposeful history courses for this majority.

To modernize the history in San Antonio and to save half the waste that is now going on, the first necessary thing is that the supervisory officials get the functional point of view; a second thing is that the teachers acquire the functional point of view; and the third is that the necessary books, maps, pictures, be supplied in sufficient abundance to take care of the needs of all of the students. For its new buildings the city at the present

time is buying the most modern type of furniture and appliances. For the instructional work the city should likewise purchase the most modern type of educational tools and appliances. Let the city economize on buildings, on furniture and material equipment; on abbreviation of the course of study so that children can finish somewhat earlier and thus the city need fewer class-rooms and fewer teachers for a given number of pupils; but let them not economize on the indispensable materials of instruction. For the history the major things are properly written books, magazines, newspaper articles, government bulletins, etc. Second after these for purposes of making clear the details of the reading, are an abundance of maps, charts, pictures, models, etc.

MATHEMATICS.

Arithmetic.—The textbooks in arithmetic in the elementary school are of standard quality. In the fundamental operations, much additional work is given by way of rapid intensive drills for speed and accuracy. Considered simply as textbook and drill teaching, the city is certainly doing as well as cities in general. One observes in the buildings about that same proportion of superior work and of inferior work that one expects to find where average work is being done.

The results of the training in the fundamental operations of arithmetic, both whole numbers and fractions, were measured by means of tests made up of standard units. The average ability of the San Antonio children in performing the various operations is shown in the following tables. They are so arranged that comparisons can be made with the identical tests made in certain large buildings in Chicago. Each San Antonio grade is compared with the Chicago grade next higher in number,—seventh with eighth, sixth with seventh, etc.,—without any reductions as in the case of the spelling and handwriting. The numbers represent the average number of standard problems solved correctly in the allotted time.

Column Addition.

	IV	V	VI	VII
San Antonio	7.8	7.8	9.2	9.5
Chicago	7.3	7.9	9.7	10.3

Subtraction, long problems.

	IV	V	VI	VII
San Antonio	4.8	5.4	6.6	7.2
Chicago	3.5	4.8	5.4	7.0

Multiplication.

	IV	V	VI	VII
San Antonio	3.9	4.7	5.9	6.2
Chicago	4.3	5.4	6.1	6.0

Short Division.

	IV	V	VI	VII
San Antonio	1.5	2.6	4.0	4.7
Chicago	2.8	3.5	4.4	4.8

Long Division.

	IV	V	VI	VII
San Antonio	1.0	1.3	1.9	2.5
Chicago	1.2	1.5	1.8	2.3

Addition of Fractions.

	V	VI	VII
San Antonio	7.4	9.0	8.6
Chicago	7.1	8.5	10.7

Subtraction of Fractions.

	V	VI	VII
San Antonio	9.2	10.9	10.5
Chicago	8.3	10.6	12.3

Multiplication of Fractions.

	V	VI	VII
San Antonio	4.9	7.9	10.6
Chicago	3.2	7.0	9.0

Division of Fractions.

	V	VI	VII
San Antonio	4.6	7.6	10.2
Chicago	3.9	6.1	6.5

The results of the tests were equated with those of Mr. Curtis in the four fundamental operations with integers for Boston, New York, Detroit, Butte, and other cities. It appears that San Antonio is getting about average results as compared with other cities in the country. This is being done in a seven-year course, too, instead of an eight-year course; although the children are of the same degree of maturity, a year being saved by entering one year late; at seven instead of six.

This does not mean, however, that the work is all that it might be. It is far from that in the cities in general of the United States. Throughout the country the supplemental arithmetic work of the schools does not grow sufficiently out of the fundamental number-thinking of the community; the preliminary work tends everywhere to be over-developed by including too many kinds of topics; by using numbers that are too large and complicated for children's thinking; by introducing problems of a subtlety and degree of complexity that have no place in the rapid preliminary training; and finally, the functional arithmetical training which should be the largest and most serious part of the study is almost wholly non-existent; in its place there exists the false substitute of imaginary so-called reasoning problems with which the arithmetic books are so full. A good quantity of these imaginary problems actually belong in the rapid preliminary work,—easy problems using small numbers for the sake of learning the operations. Such problems, however, cannot possibly be made to serve for functional supple-

mental training. This latter must grow out of the fundamental number thinking of the community.

The city is doing a large part of the preliminary work in very effective fashion; much rapid oral work with tables; rapid practice with easy problems in all the fundamental operations; rapid oral reasoning problems using numbers of manageable size; using the reasoning problems of the textbooks for explanation of the processes without performing the operations with the large numbers involved; much oral arithmetical drill, etc. All this naturally should continue. The classes, however, should be supplied with certain printed helps for the work, which they do not now have. For drill in speed and accuracy in multiplication, let us say, there should be at the disposal of the class printed sheets containing the problems ready for the solution. Each pupil is given one of the sheets containing on it a large number of problems with space for the multiplication. He gets a large amount of drill by working all the problems on the page before him. The advantage of having the problems ready printed with spaces for the solution are: (1) The teacher does not have to copy the problems on the black-board and thus her time is saved for needful work. (2) The time of the pupils is saved, since they do not have to copy the long list of problems. This copying is not of educational value. (3) With such an abundance of helps, less oral work is needed. This further saves the expensive time of the teacher. (4) All of the pupils can be actually working at one time, and not merely passively listening to what others are doing when the work is of the oral type. The paper used for such work need cost no more than paper used for arithmetic work at present. The added expense of the printing is small when done in large quantities. The twenty-five percent increased efficiency in the drill in fundamental operations will pay the added expense many times over. The same results now had can be had in considerably less time. In certain cities these drill helps are in part supplied by the school printing presses used in the manual-training printing work. In other cities the helps are obtained from certain publishing houses.

After the preliminary work has laid a solid foundation in speed and accuracy in the performance of the basic operations of arithmetic, the practical or functional arithmetic should be developed. This should grow out of things with which the children have to do. Many of the school yards, for example, require filling and leveling. Let the pupils calculate the cost of the work. Let them calculate the number of cubic yards of gravel needed, the capacity of the wagons used for the hauling, the number of loads to be hauled, the cost of the hauling, etc. Let the girls in the domestic science classes do the marketing, the cooking, the serving, and calculate accurately the cost of providing the meals they serve to each other, to the teachers, to the school board, etc. Let the boys in constructing a school fence perform all the various calculations connected with the work. Let the pupils make arithmetical studies in connection with such matters as the following: the family grocer account, the family fuel supply, rent, taxes, insurance, illuminating gas, electric light, water supply, street paving, street cleaning, city lighting, etc., etc. The possible list is a long one.

Much of the functional arithmetic will develop better in the civic and vocational classes than in the arithmetic class. But it cannot be developed except as these subjects are rightly developed at the same time. Arithmetic should not be mainly a matter of solving hard problems. After a certain point in the course is reached, it should be mainly a matter of accurate numerical thinking. The problem-solving normally is incidental, by way of making reductions, summations, etc., needed in one's thought and in one's work. A banker or a contractor, a merchant or real estate man, must do very much of his thinking in exact mathematical terms. Certainly he must be able to make any necessary computations with a fair degree of accuracy and speed. But these are not for him the principal things. While they are important they are still incidental to the main current of his thought and his work. The computations are meaningless except as they are part of this real thought and work.

High School Mathematics.—The mathematics needed by the majority of high school students consists of numerous applica-

tions of arithmetic to the multitudinous problems of practical affairs. For the girls there can be no justification for any other kind of mathematics. For the boys going into agriculture, commercial, clerical, transportation vocations and most of the trades and professions, the same thing can be said. The city is now investing a large sum in high school algebra and geometry. Eighty percent of the boys and one hundred percent of the girls upon whom this money is spent would be ten years hence just as well off if the money were saved. They would be much better off if it were expended upon the study of the practical civic, social, industrial, recreational, and other matters which are greatly needed by this rising generation of young people in San Antonio. This recommendation will appear so absurd to many that I make this further recommendation: Get the opinion on this topic of intelligent leaders of thought in this country, educational leaders as well as leaders among public-spirited, social-minded laymen. The amount of money annually invested and the amount of teacher and student labor annually consumed in what is here pronounced unjustifiable studies for most students is large enough to justify such an investigation. Also, consult any group of laymen of San Antonio who are graduates of the high school as to the degree in which they have ever used their algebra or the demonstrational aspects of their geometry.

Of course many will refer to the disciplinary value of algebra for strengthening the mind. Naturally it has a little value of that sort, but there is no reason to think that the learning of useless things is any better for strengthening the mind than the learning of useful things. Quite the reverse.

There are some who should study algebra and geometry for vocational purposes. For these, much the same thing can be said for the higher mathematics that was said for arithmetic. There should be in both subjects certain preliminary work giving an over-view of things that lie within these mathematical fields, for the sake of perspective. This preliminary study will necessarily be without reference to practical application. It should be rapid. It should not be deep or intensive. It will be preparatory for practical application. After this basic founda-

tion is laid, then, the algebraic and geometrical work should certainly be of the practical applied type. The preliminary will not close at any certain point in the course and the practical teaching continue from that point. The preliminary will be large in the beginning and will gradually diminish throughout one's mathematical course. The practical should be introduced in some measure as early as possible, and gradually expand throughout the course. Recent books on shop mathematics give a minimum of the elements of algebra and geometry in the beginning; and after this basis if the subject is laid, the work is functional, applied, and practical.

Is no subject to be taught merely for the municipal luxury of spending money upon useless things? If cities are to limit this form of indulgence anywhere, it would seem that it should be in the field of education. It is not so much a matter of the money wasted. It is youth that cannot afford to have its irrecoverable time so squandered.

SCIENCE.

One's fundamental knowledge of science is obtained from one's daily experience with things; wind, rain, sun-light, grass and trees, electric light, fuel combustion, machines, phonographs, food and drink, dust, bacteria, organic decay, lenses, water mains, gas supply, etc., etc. Everything with which one comes into contact is a complex of materials and forces treated in science; and science treats of nothing else except these things that are interwoven in the experiences of daily life. While one gets acquainted in a rough way with the materials and forces of the world of science in this out-of-school experience, the various matters are so complicated that they need to be taken up one after another in the school and analyzed into their elements, and these elements studied in relation to the total situation before one's knowledge is at all adequate or complete. It is however, the fundamental things of one's own daily experience that should be the science matters analyzed and in connection with which all of the elements of the sciences are learned. The pro-

spective mechanic, therefore, will analyze situations relating to tools, machines, electricity, chemistry of metals used in mechanical industry, etc. The prospective housewife will find as science studies, the nature of food, heat, electricity, the physics of household appliances, bacteriological study of molds, yeast, mildews, the chemistry of cleaning, the physics of color harmony, etc., etc. All pupils will have experience and will look forward to experiences in connection with science situations relating to sanitation, hygiene, civic problems, etc. The number of analyzable situations of vital interest to all boys and girls in the community is practically endless. The science of both elementary and high school should be thoroughly practical, and be but an analysis and completion only of that vague unanalyzed science knowledge which is got in a wide daily experience.

There is, however, the usual qualification. In proportion as situations are complex and difficult, it is necessary to have a sufficient mastery of certain keys for unlocking them. The science-complex situations are made up of materials and forces that seem organically related to each other in certain systems. Physics, for example, covers a certain field of forces and relations. Chemistry covers a very wide field of different forces and relations. Physiography handles still a different series of matters. Biology, botany, zoology, entomology, bacteriology, physiology, etc., relate to fields each of which has within itself a certain unity. Since the analysis of the science complexes involved in the various practical situations is dependent upon some knowledge of the nature of the factors that enter into the situation, it seems clearly desirable to have certain preliminary studies which give a rapid over-view and perspective as to the materials and forces that pertain to each of the many fields of science. One should have some knowledge of the elements in their isolation before he can analyze them out of compounds.

The schools ought therefore to give short, rapid courses in each of the various sciences. The work will be qualitative. It will show the main outlines of what is found in each of the various fields. It will meet with the complexities that lie within

this general outline; but it will not dwell upon the complexities in a degree beyond that suited to the maturity of the pupils.

The preliminary work in large measure should come in the later grades of the elementary school. Where it has not been here given, it should be given fast and heavy in the first year of the high school, or first and second years.

In the rapid preliminary studies of the various science fields the major part of the work should be in connection with things of common use in daily life. The study of electricity should be in connection with door-bells, batteries, electric lights, electric toasters, telegraph keys, etc. The studies of yeast, molds, mildews, etc., come naturally in connection with the situations where these things are met with. By organizing the preliminary studies in each of the sciences about the things of common life, it is possible to be developing the practical at the same time that the preliminary is being covered.

A good deal of the preliminary work should be reading, relating to the things of each of the sciences, laboratory demonstrations, and laboratory experience on the part of the pupils, which will be altogether unapplied, or as we call it, pure science. It is not impractical, however, since it is the laying of the foundations to be used in the practical applied science. There ought to be very much science reading in both elementary and secondary schools. The textbooks are of little value for this purpose. One needs to have the electricity treated in a readable popular way; yet having the facts accurate in all respects. Pupils need to read in the same way a quite extended popular reader on each separate field; bacteriology, insect life, the economic and sanitary aspects of bird life, mechanics, heat, sound, light, chemistry, plant life, etc., etc. Schools need to be equipped with apparatus, most of which should be made by the pupils for illustrating the various scientific matters covered in the readings. The reading we may say is the pre-preliminary for demonstration laboratory work. The latter is the preliminary preparing for the functional analysis of practical situations. At present the science work in the schools of San Antonio is defective since elementary science is not given in the grades, except for the hygiene, which

is mostly textbook work. Fortunately for this, the school uses a good textbook. The foundation work of each of the other sciences should also be developed in the elementary schools, in such degree as possible, both the reading and the demonstration work. In the high school, the preliminary work is much over-developed. Each unit is so over-developed that it is not possible for students to get the desirable preliminary over-view of each of the various sciences. Two years of science are prescribed for all students; but five sciences, each on the preliminary level, and each taught for a full year, are offered. Students cannot well take more than two or three. The list of five seems not sufficiently to include bacteriology, entomology, the civic, and economic aspects of biology, etc. Because of the over-development of each of the units of preliminary training it largely fails of its purpose. Moreover, it takes up such a quantity of the time as to preclude the development of functional science based upon the practical situation in which the students pass their days. Neither the laboratory science, the reading material, nor the observation work in the science department relate in any considerable degree or in any conscious degree to the practical problems of the people of the community.

The sciences taken by the high school student do give the necessary preliminary over-view; but certainly as much or practically as much could be had in a half year, were the work organized consciously for labors of the preliminary type. The law of diminishing returns enters in so fully into the second semester of this preliminary science that there are doubts of its advisability as now given. The time should be saved for functional science studies.

The science teachers of the high school should be the supervisors of the science work in the grades. Naturally this will be only in the upper grades and carried on by specially trained departmental teachers. This method of organization will permit an organic unfoldment of the science work from the grammar grades through the high school. In the grades, the preliminary foundation will be broad and the functional applications will be

relatively narrow. As one grows up through the high school, these relative proportions will be just reversed.

The plan presented is one that is being worked out in our most progressive school systems. It is not one that can be suddenly inaugurated and introduced into a city. It must be a growth. One must, however, see the plan in total outline in order to provide for the few steps of growth next year, and the few additional steps the year beyond, etc., etc. If teachers will go only as far as they can see ahead, when they have reached that point, then they can see further ahead, and see what next to do. If asked to work the whole matter out within a short time, they would simply be bewildered and the work demoralized.

We do not press the suggestion that these recommendations be adopted as they stand; we present them rather with the suggestion that those in authority over the teaching of the science in the schools consult the leaders of educational thought, both the professional leaders and the social-minded lay leaders as to what they think of the validity of such recommendations.

DRAWING IN THE ELEMENTARY SCHOOLS.

Eight and three-tenths percent of the elementary school time is devoted to drawing. The current annual investment is in the neighborhood of \$35,000.

The subject has not been long in the course. This may explain its apparently very much undeveloped condition. I say apparently; as a matter of fact, I was unable to observe much of it. The subject seemed very elusive and with two exceptions was never going on in a building during my visit. Children's drawing seemed not to have accumulated during the term in the school-rooms in the fashion that is usual where superior work is being done.

The training is important. Applied design plays a large part nowadays in human life. For many labors it is as needful as mathematics or science. For all it is valuable for developing an appreciation of the aesthetic aspects of the visual world in which one moves and acts.

Although having seen too little of the work to pronounce judgment as to its efficiency, I am definitely of the opinion that the work in the subject should be carefully looked into by those in supervisory authority. The size of the annual investment and the probable degree of inefficiency are large enough to warrant serious examination. The main thing probably is to get constructive advice as to what to do in such a course from successful drawing supervisors in cities that have had time for a full development of the subject.

LATIN.

The city is recovering normally from the Latin superstition. Twice as many students take modern languages instead. Owing to the subtlety of the educational questions involved, it is necessary to enter into them very fully or omit discussion altogether. Under the circumstances the latter seems preferable for the present. Let us merely state a few probable conclusions from such arguments:

1. The major portion of needed knowledge of Latin etymology as this exists in English words should be mastered in connection with English word-study.

2. It is admitted that professional men such as physicians, lawyers, pharmacists, etc., can master their Latin terminology directly without need of a long intermediary Latin course.

3. A moderate number of students should take some Latin.

4. Most of these should take but one year; or at most a year and a half. For these students' needs, the content of the course needs to be radically changed. The purpose of taking it must dominate in the choice of study materials and methods.

5. The high school should devise a profitable short credit course in this subject. The present three-years-or-nothing course is justified for very few students indeed.

SPANISH.

Spanish is a living language in San Antonio. Because of the nearness of the city to Mexico the language will always be used by a considerable portion of the population for commercial and social purposes.

There is a double problem. On the one hand, there are the children of Spanish and Mexican parentage, between the ages of seven and seventeen to the number of about 9,000. For these, Spanish is their mother tongue, and all that is needed is perfecting and developing their use of it, and training in the reading and writing of it. On the other hand, there is that portion of the population to whom Spanish is wholly a foreign tongue, but who can see commercial and social advantages in possessing it. For both types of students the work is now begun in the fifth grade, and is carried on in the same manner. It probably should begin at different times for these two types of students, and be carried on in a somewhat different manner. It is altogether possible that the children in the Mexican schools such as the Navarro and the Brackenridge-Memorial should begin the reading, writing, and spelling of the Spanish in the first grade at the same time that they begin the reading, writing, and spelling of the English language. As they read a number of primers and first readers in English they might at the same time read a number of primers and first readers in the Spanish. The latter to them is more of a living tongue than the former and will serve in fact as a better basis for learning the mechanics of written language. As the work proceeds through second, third, fourth, and later grades in reading, there can be no visible reason why their reading might not sometimes be in Spanish supplementary textbooks. Since training in the correct use of a language as described in a previous chapter comes not so much from a study of the grammar as from actual use of the language for expression, it would appear that with these Spanish-speaking pupils the recitations in geography, history, arithmetic, etc., together with the written papers in connection with these subjects should often be in the Spanish language as well as in the

English. For these students, both are living languages and both should be taught in the way that is necessary for obtaining command of a living language. After a certain point is reached for these people, not much would be required beyond a continuity of outside but supervised home-reading of Spanish books, newspapers and magazines. On the expression side, oral and written, the work might be confined simply to the elimination of errors of speech. The home life and general social life would take care of the fundamental practice training.

To those to whom the Spanish is not their native tongue, the schools perhaps do well in beginning the work with the fifth grade. This is in line with common custom in progressive school systems. But wherever begun for these pupils, the schools labor under a tremendous handicap. A language is rightly learned only where it is naturally spoken in connection with the things and objects to which it refers. The school-world is an artificial world. Not a great deal of the world as a whole can be transferred to the school. Not a great deal of the natural conversational topics and objects of reference are found at the school. The teachers of the beginning Spanish classes are using excellent methods so far as it is possible to use them under school conditions. They have the school-rooms to talk about, the school buildings, the school yard, the furniture, the parts of the body, series of pictures, etc. There is a sufficient variety of these things at hand for the beginnings of the work in the fifth grade, and a good foundation can here be laid for a spoken understanding of the language. This teaching conversation is, however, of necessity a bit artificial. After the first few months of novelty wears off, and they have become familiar with the various objects in view and the simple actions that they can perform, the active work palls and interest wanes. They need to go on to new things and new situations; but they have used up all that are within scholastic reach.

For these pupils there is often no outside fundamental Spanish language-experience in which they freely mingle. The whole thing, fundamental experience as well as supplemental training, must be developed at the school. This is a practical

impossibility. Much can be done, but there can be no adequate substitute for actual association with Spanish-speaking people as the fundamental basis of the training.

The nearest substitute that can be had after the preliminary conversational work is covered is reading of a copious, interesting, and varied character. The children beginning with the high fifth grade and continuing on as long as they continue their Spanish studies need to have a great wealth of stories of a degree of difficulty and of a quality or character fitted to their degree of maturity and their special interests. A part of their literary training should be arranged for in connection with this particular class; and to give variety of topics covered in the reading, variety of vocabulary, and variety of expression, some of the history reading of these students should be in Spanish and the recitations in the Spanish tongue. These recitations would probably best be partly oral and partly in writing, using the Spanish as the medium. To give other aspects of vocabulary and other kinds of serious practice, there should occasionally be long readings together with oral and written recitations in geography, in hygiene and sanitation, in popular sciences, in current events, even in arithmetic, etc. It can all be done by the Spanish teacher using supplementary textbooks in Spanish. The thing needed is a variety of contacts with reality which the students can take seriously. When the class runs out of objects in the school-room and about the school grounds, they can get into contact with imaginary objects by looking beyond the school grounds into the objects of history, geography, literature, and other things. It is merely an imaginative extension of the logical beginnings in the fifth grade; but a sound extension. Current events, using the local Spanish papers as the basis of the work, may probably be the most valuable of these various reading and discussion exercises. We are not recommending that more time be given to the subject than is now given. We are only recommending that more reality be employed as the basis of the teaching, so that the reading may be more interesting and the expression more vital. When this is done, the amount of time that is now used will bring forth larger results. As a matter of

fact too much time is now given to the subject by many pupils, because of this lack of vitality. There are students beginning with the fifth grade, who carry Spanish through the high school, devoting seven years to the subject. This is entailing an undue expense upon the city for what in many cases is a very problematical benefit. Spanish is one of the easiest of modern languages. Most of those who take Spanish as a foreign tongue will have relatively little need of it, either commercially, socially, or for the leisure occupation of reading Spanish literature. The majority ought to get all that they need in much less time than is now devoted to it. For a few, however, whose vocations or social relations will bring them into frequent direct contact with Mexican affairs, the training needs to be full, bringing them to a high standard of fluency and accuracy. These are the exceptions and not the rule. For them the same kind of training is needed as for those whose needs are smaller. Simply, they ought to take the full length of the course, while the others should be compelled to stop, so far as the public investment goes, at a considerably lower level. Beyond a certain level the training is special vocational training. The city is justified in giving specialized vocational training only to those who consider using such training.

The need of employing some such method of giving variety of reading and of expression can be observed by anyone who will study the situation. I visited a certain fifth grade class that was being taught by an excellent teacher. The work that was being done was conversational, natural, and of a very superior character. The pupils were making large progress, although they had been studying the subject for less than four months. I visited another seventh grade class taught by the very same superior teacher. She was using as the basis of the work a widely used Spanish book especially prepared for elementary schools, which contains in a condensed way a little discussion about a very great variety of social, industrial, and domestic situations. These situations are chosen for the purpose of expanding the vocabulary. The reading, however, is didactic. It cannot possibly be interesting to any normal mind. The teacher

tried to use the things there set down as the basis for conversational discussion by way of practicing pupils in the uses of the new words there employed. The pupils, however,—a superior grade of students from the best social class in San Antonio—simply could not give their attention to things of no appeal. They could not take the things seriously enough for real conversation. The teacher labored heroically and it seems to me as wisely as was possible under the circumstances to bring the students to a serious consideration of the things being read so as to permit the necessary conversational practice. Their restlessness and their indifference, however, seemed impervious to either artifice or persuasion. About all the teacher could do was to have them read and continue to read from the pages of the book. As training of these pupils the time was largely wasted, for the majority of them.

Two things were mostly to blame. One was the use of reading materials that were meaningless and useless except as mere gymnastic drills. They needed reading materials that they could take seriously; materials read for the sake of the information to be obtained; or readings for the interest in the story. When the reading materials are of these types it can be made to serve as the basis of discussion and recitation, just as history written in English can be used as the basis of discussion and recitation. The evil discovered could be cured by the city's purchasing for the library of every school where Spanish is taught a variety of easy stories for the pupils to read, and a variety of subject matter readings such as listed above; and by the students bringing Spanish newspapers to the school as the basis of a portion of the work. The two things needed in connection with the reading are far greater copiousness and a far greater contact with actual realities.

The second thing needed is a rigorous selection of the students who take the Spanish courses, whether in elementary school or in the high school. The course should be difficult to get into and easy to get out of. It should be difficult for a student to remain in the course if he is not taking the work seriously and making real progress. At the present time there is

a general regulation of a most unjustifiable character, to the effect that "all subjects begun by pupils below the high school must be carried through the prescribed primary and grammar school courses until the subject is completed in accordance with the course of study." Students often enter the Spanish classes because of a passing whim on their part or on the part of the parents. After beginning the work, they cannot drop it without leaving school altogether. The marks they make in Spanish have no effect upon their general passing grade. They simply pass on through the Spanish classes, fifth, sixth, and seventh grades; passive, idle, careless, doing little for themselves, wasting the time of the teacher, wasting their own time, acquiring vicious habits of study, acquiring a highly undesirable attitude of mind, and preventing good work on the part of the few who actually want to master the Spanish. The evil educational effects of such a regulation for half the students who lose interest and do not actually pursue the subject possibly offsets the good effect of beginning the work in the elementary school for those who actually want to master the Spanish. The city is now investing about \$8,000 a year in teaching Spanish in the elementary schools. Half of this is not given, however, to the teaching of Spanish. It is expended upon pupils who are making little or no attempt actually to learn the language, and from whom the expenditure ought to be withdrawn the instant that they decline to do the work in proper fashion. Were this done, and also were classes in the subject organized every year instead of every half year so as to permit larger classes in the elementary schools, or if the Spanish teaching was taken care of at certain centers only in the case of quite small classes, it would be possible to accomplish all the actual elementary Spanish training that is now being accomplished with half the present community cost. The city should save the \$4,000 that it is now wasting upon the indifferent ones and spend it for the necessary books and magazines for the actual training of those who are trying to profit by the facilities so generously offered by the city. For these diligent ones, actual results could thereby easily be quadrupled.

GERMAN.

German is also a living tongue in San Antonio. A fairly large proportion of the children in school are of German parentage. There is no reason to think, however, that German will remain a living language on the part of any considerable portion of the population of the city. The children now growing up are of the second and third generations. Our American tongue is now more nearly their vernacular than the parental German. There is no nearby German border to keep the language alive, as in the case of the Spanish. The foreign commerce of San Antonio is very inconsiderable, so that it is not needed as a commercial language.

It is, however, a means of social communication on the part of German residents in the city with their relatives in Germany. It is a language in which much of the learning of the world is written. It possesses a large and valuable literature. Knowledge of the language on the part of the younger generation keeps it in closer sympathy with the parental generation. All these are justifications of the city's course in giving German beginning with the fifth school grade to the children of German parentage. If parents are anxious that children learn it the work is greatly facilitated, since the fundamental knowledge is obtained in the general social conversation in the home and the wider social circle. Schools for these children need only to give that quantity of grammar necessary for correct use of the spoken and written German, to give practice in the writing of the language and to guide in forming habits of reading German literature.

For these children the work can be accomplished in a manner similar to that already explained for the teaching of English and of Spanish. For these children to whom German is a living tongue, there should be in the library of the schools a copious amount of German reading adapted to the level of maturity and to the interests of the children of the various ages, covering literature, history, geography, industry, popular science, current events, etc. The grammar taught should be of the type explained

in connection with the teaching of English, and employing similar methods.

If German parents are not sufficiently interested in the matter as to use the German as a large portion of the language of the home, then it would seem strange if they should expect the schools to take up the full task of training the children in the spoken use of the tongue. Language teaching like certain other things we have discussed can only be partially transferred in its fundamentals to the school. Language lives naturally only where the things and the ideas are found to which it refers. One gets his fundamental language training only as his language experiences are in direct contact with living situations. The schools can take a living language so learned and perfect its use; but they lack the necessary conditions for effective practice. They labor under the large handicap referred to in the previous section.

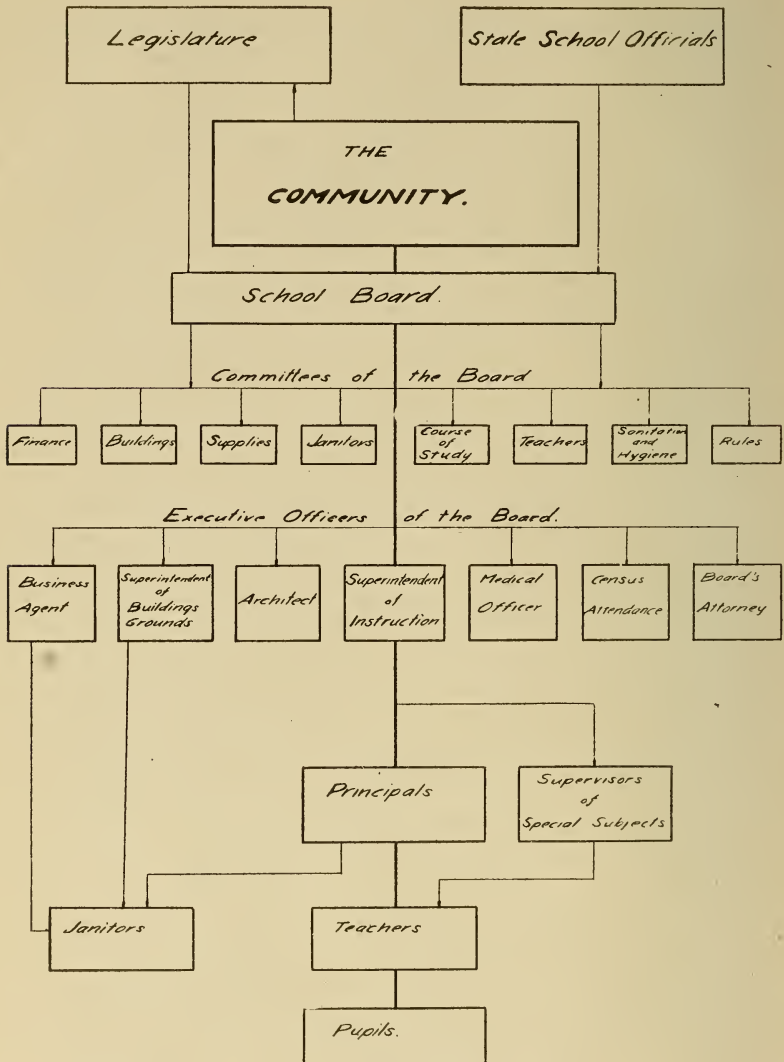
There is the same general handicap in the training in German of those of non-German parentage, to whom it is a foreign language. The method to be employed is wholly analogous to that already described in the section above concerning the Spanish. On the one hand, there should be provision for the necessary reading, recitation, discussion, debate, and social converse in the German tongue. This will mean a purchase by the city for the libraries of a large quantity of German reading material, both books and magazines. The children themselves ought to furnish the constant current supply of German newspapers. On the other hand, the course for the non-German children should be seriously pursued by them or the privilege should be withdrawn. The regulation that the language once begun must be continued for the three years of the elementary school should be rescinded. Instead of its being hard to get out of the work once begun, it should be hard to enter it, and easy to drop out the moment indifference appears.

Chapter IX.

GENERAL ORGANIZATION AND ADMINISTRATION.

As one reads the minutes of the Board for recent years and the published Rules and Regulations, it is clear that the school city is fortunate in having intelligent and liberal-minded general management. A city that can show so many progressive educational developments is moving along the right road. And yet there appears to be some lack of balance in the distribution of responsibilities. The various individuals upon whom responsibility rests are shown in Chart VIII.

Chart VIII.



In the distribution of responsibility among the various individuals represented in this chart, three things can be said with considerable confidence:

1. Certain functions are performed by the state that would better be performed by the school board and superintendent. This is notably the case in the choice of textbooks. These latter are the tools of instruction. Every city of the size and importance of San Antonio should have the right to choose the tools that are to be used. It is impossible to have one set of textbooks that will equally serve the purposes of all social classes within the scholastic population of even the city of San Antonio. The textbooks used in the Navarro School should many of them be quite different from those used in the Travis School; and these in turn different from those used in the Grant School. When this is the case within a single city it is certainly very much more the case in a state so large as Texas, with its rural and urban population, its agricultural and its industrial regions. The state does not require uniform desks, uniform chalk, uniform buildings, uniform qualifications of teachers, etc. Cities are permitted in these matters to fit means to needs; but in textbooks alone which are the most immediate means of instruction, the state has unwarrantably interfered in the educational rights of the city. That neither board, superintendent nor teachers are free to choose the most essential tools that they are to use in the work for which they are held responsible is a most glaring absurdity.

There is only one way out, in all probability. The city will have to furnish the tools of instruction just as it now furnishes the buildings, fuel, chalk, teachers, janitors, repairs, etc. After spending so much on these matters, it is rather short-sighted not to furnish a proper assortment of the instruments needed for instruction. The result is that a very large part of the investment is wasted. Teachers' salaries in San Antonio are much higher than they were twenty years ago. New buildings and the upkeep of buildings and grounds are far more expensive than they were then. It is probable that the quality of the results have not kept pace with the increase in cost. This is largely due to the fact that the textbook situation has not improved in any extra-

ordinary degree. The situation in fact is not greatly different from what it was twenty years ago. The schools have been making rapid progress on the side of those matters that are taken care of at public expense. Schools have always been backward and always will be backward in improving those things that are left as individual burdens upon the parents. The tools of instruction of a twentieth-century character should provide for ten times as much reading matter as the antiquated textbooks of the past which linger into the present. They do linger and they will linger so long as they must be individually purchased by the parents. For the school city not to improve the means of instruction is to throw away a third at least of the large expenditures already made. If the school city should set to work to investigate and to put into practice every kind of improvement possible in the various instruments of instruction, it is altogether probable that the city could get done all that is now done in half the teaching time that is now expended and at not more than two-thirds of the expense.

Outside of the choice of textbooks, it seems that the state has given the education functions rather liberally over to the school city.

2. A second thing that can be said with reference to the distribution of educational responsibilities is that the school board and the general community have given over certain essential functions in altogether too great measure to the superintendent, principals, and teachers. Chief among these delegated responsibilities which ought not to be so fully given over to the professional people is the formulation of the curriculum. So completely has the function been given over to the school people that the schools have in much of the work been permitted to drift into academic eddies apart from the currents of practical affairs. The schools have been permitted to teach a number of expensive things that can be of little use to anybody. They have been left too much to give what they pleased, without looking to what the men and women of the city actually need. In previous sections we have pointed to the waste that results from letting the schools force algebra and geometry upon all

high school students; in requiring three years of Latin if any is taken; in giving portions or kinds of history, science, civics, etc., which are not sufficiently related to the world in which men and women actually move and act; in the growth of an artificial, wasteful methodology in the elementary school. But these wastes constitute only half the story. For the other half, there is the failure of the schools to put into the training of a twentieth-century generation so many of the additional things that they are going to need for meeting present-day problems. The things have been pointed out rather fully in previous chapters.

The schools are agents of the public. The general public directly and through the school board should keep the schools informed as to what the youth of the city are going actually to need when they arrive in the world of affairs. It is the business men of the community who ought best to know what is needed by those who are to enter business. The committees on education of the business men's organizations should formulate statements of needs and give them over to the schools. The tradesmen, members of trades organizations, etc., are the ones who know best what is needed by those who are to be successful in the various mechanical, factory, and building trades. They should likewise feel their responsibility for voicing the educational needs of their class. In the matter of home work, it is intelligent house-wives who ought to know most. They need to be concerned in the drawing up of the system of training that will actually reach the needs of their daughters. It is the civic and social leaders of the community who ought to know best the actual needs of the city on the side of civic and social training of youth. It is the physicians of the city who ought to be able to say with the greatest authority what training in hygiene and sanitation should be given to the children. It is the guardians of law and order at the head of which stand the judges who ought to know most about the things in which men need training in order that they may be self-regulating.

In general, communities do not look at their schools in a sufficiently matter-of-fact way. There seems to be a certain

superstition in most communities as to the magical power of schools to use certain kinds of useless flummery in bringing forth things of superior value. Communities, however, are recovering from this superstition. They are coming to see that the development of such powers as are needed is as much a productive task as the labors of a factory or a farm. The factory will produce only the things that are aimed at. The farm will produce only the particular things that are cultivated. A school likewise will bring forth only the things that are aimed at definitely. These should be just the things needed; and the community should not be willing to accept a substitute with the usually deceptive statement that it is just as good, or even better.

3. Third, in the distribution of responsibilities, there are very many easy routine functions performed by the board and its committees which ought to be given over to the executive employees of the board. For these executives the board will lay out the lines of general policy. It will expect its agents to administer the routine matters in accordance with these general instructions. In reading over the minutes of the board for the last two years, one meets with such matters as the following, which are taken care of by the board in their meetings, but which would better be taken care of through general legislation:

1. Approval of the high school commencement program. One would think that if the school principal and superintendent cannot be trusted to approve the high school commencement program the board has made a mistake in its choice of these officials.

2. Permission for the expert adviser of the school board from the State University to deliver a free lecture in the high school auditorium. It would seem that a principal or superintendent ought to be able to make such decision in ten seconds as a non-debatable routine duty.

3. Making emergency repairs of a minor nature. If the superintendent of buildings and grounds cannot be trusted to use his discretion and judgment in the making of minor emergency repairs, he ought at once to be replaced by somebody in whom the board can have confidence.

4. Consideration of requests for distributing advertising matter in the schools. Consideration of requests for announcing things of a commercial nature in the schools. These matters ought to be covered by general legislation of the board. The business agent ought to be able to answer any such inquiries as a portion of his routine duties.

5. The high school asks permission to use its own auditorium for repeating an entertainment designed to raise funds. Considering the fact that the board expects the principals of the buildings to raise funds for supplementary books, pianos, etc., through entertainments, the thing in the abstract is approved of. It seems strange that the board would hire a high school principal of such calibre that he cannot be trusted to make decisions as to the giving of entertainments in his own building. A high school principal ought to be a man of as sound judgment as school board members.

6. The principal of one of the elementary schools petitioned the board to give the usual Christmas entertainment at his school. This could easily be covered by general legislation. A better plan would be to hire only principals who possess discretion, and let anybody go who knows himself not to possess it.

7. The girls of an elementary school presented a petition for laying out a tennis court upon the grounds at one of the schools. The principal ought himself to be able to make decisions.

I went through the minutes of the board for the last year and a half, and classified matters covered under two headings: (1) Things that should be taken care of by the board; (2) Things that might be delegated to executive officials. Of matters of the first type which the board should retain, the list of items comprised 35 percent of the whole. Of things that might well be delegated, the list comprised 65 percent, or twice as many. These latter are routine matters that can be taken care of rapidly and easily by responsible executive officers. They need supervision, certainly; but the board has chosen the wrong men if they have to do more than supervise. The agents

ought to be more expert than the board; and to be able to make right decisions more expeditiously and with fewer mistakes. Laymen can supervise intelligently many things that they cannot do intelligently.

We do not recommend that the school board have fewer meetings, or shorter meetings, or that it take care of a less amount of business. In my opinion the serious matters confronting the school city of San Antonio cannot be adequately taken care of by the board in less than the liberal amount of time that is now given to it. They need to place the routine functions into expert executive hands, in order that they may have more time for the larger board functions to which we referred in the previous section. Many things have been delegated to the school people which ought to be kept in the hands of board and community; and many things have not been delegated to the school people which ought to have been. We are suggesting that the board give up the petty routine things to which they hold and undertake the matters of large serious responsibility relating to the curriculum and the provision of the means necessary for efficiently carrying out the work. We recommend that the board take care of the large problems of general policy rather than the little problems of specific application. By giving so much time to the latter, the board consumes time needed by the former.

Such weaknesses as exist in the schools of San Antonio seem to be due in large measure to the state of tutelage in which practically everybody from superintendent down has been held. The state has decreed the studies that shall be taught in elementary schools; and the textbooks that shall be used. The colleges have decreed the subjects and the units which shall be given in the high schools. The board has held most powers of initiative except as to the routine class-room teaching. Teachers and supervisors have had too much to go like children and get permission to do almost anything that they do. They have largely been forbidden the exercise of individual responsibility and initiative. Visible responsibility is not a thing that will grow in such an atmosphere. Things will not be corrected until

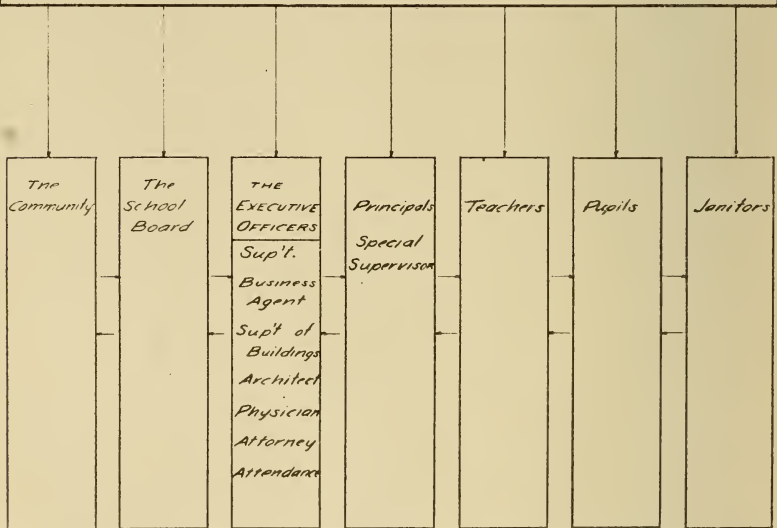
responsibility can be so distributed that everybody can bear his due share.

What ought to be the relation of the various members of the school organization to each other? What is the proper subordination of the various individuals? In this age of scientific management, it can be partially represented by the diagram in Chart IX.

Chart .IX.

*EDUCATIONAL SCIENCE AS IT APPLIES
TO
SAN ANTONIO*

- I. Educational needs of the children of the community.*
- II. Training tasks to be performed that will definitely meet these needs.*
- III. Material means required for the efficient performance of each task*
- IV. The labors of supplying the necessary material means.*



Over all of the individuals concerned in the education of the children of the city, there is the body of scientific educational information as it applies to conditions in San Antonio. Efficiency of labor consists merely in obeying the dictates of that science. The much-heralded scientific management is nothing but the management by science. Officials do not obey the arbitrary dictates of other officials; they obey that which is over and above all officials. Further, officials do not act only as they are ordered to act by persons above them; they act in obedience to that which incessantly sits in authority and ceaselessly gives its orders.

With scientific management, there is diminished need of the subordination of persons to other persons. Instead of this, there is the subordination of all to impersonal dictates. This is one of the most striking features of organization under scientific management. The other most striking thing is the distribution of responsibility for the details of the work. This responsibility is distributed to those who are in a position to be most familiar with the work to be performed. In the management of a school system, certain functions should be held by the community because they are the ones in a position best to know those things. Other matters should be given to the superintendent because he is in a more advantageous position for understanding those things. Initiative in other matters belongs to the principals and special supervisors because of their proximity to the facts. Responsibility for still other things must necessarily be placed upon the teachers, because they are nearest to the facts concerned. Still other things, even, must be left to the pupils for the reason that they know most about certain things involved.

We are thus given a criterion of judgment as to the right placing of every function that is to be performed. Yet they are not shifted from the shoulders of all others merely because they are placed upon specific ones. Scientific management provides a democratic co-operative arrangement. All are specialists within the field, working side by side for common ends. As in the co-operative carrying of any burden, when one fails

to perform his function adequately because of a lack of understanding, responsibility for performing this function falls automatically upon those who do understand. Making responsibility definite under this plan does not relieve the other members of the organization. When a teacher fails, the responsibility falls back upon the principal to get the work done, by bringing up the teacher's knowledge, by disciplining her, or by replacing her with someone else. When a principal fails to live up to the responsibilities which the scientific demands place upon him, the responsibility falls automatically upon the superintendent. If the superintendent fails, then the responsibility automatically falls upon the board. If the board fails, the responsibility rests back on the general public to make good the deficiency. Scientific management is no respecter of the legalities of the placement of functions. The total responsibility for the work is placed upon all; and when one fails anywhere along the line, the total responsibility distributes itself over all the others.

Looking at the matter from the other point of view, if the school board and community fail to do their part in defining the educational needs of the children of the community, then the superintendent and teachers do not escape the responsibility simply because they have not received their orders from their employers. The body of educational science is commanding them to their labors just as fully as if the community was performing its part. What the community does not perform, it is incumbent upon them to undertake. The responsibility falls heavy upon the superintendent in such a case. He not only has his own legitimate labors to carry but also the arduous and professionally dangerous task of educating the community to a realization of its responsibilities.

When the superintendent fails to perform his portion of the educational task, the principals and teachers are not thereby relieved of their responsibility. The body of educational science commands them to their labors just as fully as ever. Simply, they lack certain overhead help which they must make good in some other manner if it is not extended. If superintendent and principals are both inefficient, this in no wise relieves the teach-

ers of their responsibility. They must none the less do their labors in full obedience to the educational science as it applies to them.

Each individual, wherever he is along the line, reads his orders, not in arbitrary instructions from officers, but in the educational science as it applies to their labors. The assembling of this science and the making it clear to the various persons concerned is no easy task. It alone, however, can be the basis of educational efficiency in a democracy, if this is ever attained.

THE SUPERINTENDENT.

The superintendent occupies a position of peculiar responsibility. He is the intermediary between the public and their schools. His function resembles that of the architect as intermediary between owner and contractor. He must verify the validity of the demands of the community. He must then reconcile the demands with educational possibilities. He must take all the suggestions given by the community and then embody them in a workable educational program. This the community cannot do; neither can it be done by the board. Just as an architect in the case of a building, they lack the special qualifications for the expert adjustment of the details. Community and board can tell what they want; then under their supervision the superintendent will draw up the courses of study, select the textbooks to be used, select the supplementary books, apparatus, equipment, select teachers who have the necessary qualifications for doing the work desired, etc. Recurring to our former principle of scientific management, it is he who is in a position best to understand these various technical educational matters. The responsibility for the labors should necessarily be placed upon his shoulders, with those less expert sitting in supervisory capacity.

In thus placing responsibility upon the superintendent, the board is not thereby relieved. They must approve or disapprove of the results of his labors. In order to judge wisely, they must be in contact with the schools. They must know his actual

labors, not his mere statement of them. They should visit the schools, observe, discuss, and lead in community discussion. Unless they know rather intimately the way their suggestions work out in actual educational practice, they are not in a position to approve or disapprove of the decisions of the superintendent. School board members are not supposed to be mere rubber-stamps, blindly approving or disapproving. They must know what is going on.

The responsibilities of the superintendent indicate the qualifications that he should possess. He needs to know the world of men and of affairs as fully as he knows children and books and educational processes. He must be an expert in the needs of society and in the means and methods of education,—a scientific specialist with wide social vision and understanding.

In the performance of what kinds of duties will the superintendent spend most of his professional time? On the one hand, he will mingle with men of all social classes by way of familiarizing himself with the educational needs of all social classes. Second, he will study the workings of education processes as these exist in the various school-rooms in the city. Third, he will adjust the educational processes to the needs of the population as fully and as accurately as his studies of both will permit. Like the expert hospital physician he will spend most of his time in studying the factors of the situation and in making decision as to what is to be done. He will be an observer, an investigator, and a director. Most or all of the routine labors will be carried out by others. He will spend little time in his office. He will spend little time in actually directing the work of the class-room teachers. He will, however, spend very much of his time within class-rooms by way of seeing how general policies are being carried through by principals, special supervisors, and teachers. For this direction of the situation and for these expert judgments as to things to be carried out by his assistants he must also read widely as to the practices of other cities; and he should have opportunities for visiting the work of progressive cities for the sake of ideas. In a word, the superintendent of the schools in San Antonio must be the

specialist par excellence in all the wide range of educational science as this applies to conditions within San Antonio; and out of this superior knowledge it is for him to make the decisions used for guiding the work within the schools of the city.

As related to persons, his supervision will have chiefly to do with the principals and special supervisors. His function will be to keep the work of each of these up to standard. Principals and supervisors will then pass the things on to the teachers.

Investment in this expert direction is the one thing in which the school board can least afford to economize.

THE ASSISTANT SUPERINTENDENT.

San Antonio needs an assistant superintendent. In order that the superintendent be relieved of routine responsibility it is necessary that there be someone of large educational understanding to take care of the routine work of the office; the correspondence; the consultations with parents, principals, teachers, etc., concerning personal or other minor matters; consultations with supply agents; consultations with prospective new teachers by way of weeding out all of those except the promising ones who naturally would go before the superintendent; and, in co-operation with the business agent of the board, drawing up forms and taking care of the work of statistical investigation and appraisal. For a fairly large portion of his time, the assistant superintendent would be engaged in active supervision of the work of the buildings of the city. With the primary supervisor looking after the first three grades, as it might well be arranged, the assistant superintendent might look after the other four grades as his special supervisory responsibility.

Since the assistant superintendent along with the business agent will be responsible for conducting what is in certain cities now called the Bureau of Investigation and Appraisal, it is desirable that he be not only a man of practical experience, but also be well-informed as to the latest developments in the application of measurement to the problems of supervision; an expert in educational accounting of every type; and also trained in ed-

ucational psychology, educational methods, and in the problems of educational administration. The chief problem is finding a man for such a position. To get a cheap man for the work would be mostly a waste of money. While there are many men who are well-equipped for the task, they generally prefer college and normal school positions because of the uncertainty of tenure in our city systems as at present managed.

THE BUILDING PRINCIPAL.

Each principal should be to his district what the superintendent is to the entire city. It is desirable that he have within his district the same type of social outlook, the same variety of social contacts, and that he should exercise the same kind of social leadership. He should know the social conditions and the social needs of his district in order rightly to adjust the work. Covering a smaller area, his knowledge of people and their affairs is necessarily much more detailed and exact. Within his special district, he is more an authority upon social needs than can be the superintendent. In the adjustment, therefore, of the educational work to his building, the recommendations of the superintendent must in part be classified alongside those of the laymen. They represent the general outlines of things desirable to be done. The specific form of application, however, needs to be decided by the principal himself from his more intimate knowledge of the situation within the district. The principal will, therefore, take the recommendations of the superintendent as to courses of study; and within limits there set down will work up details of the course for himself so as to fit his own special problems. Likewise the principal should be permitted to choose those textbooks that will best adapt themselves to his particular courses of study; also the necessary supplementary books, as they are mistakenly called; the necessary printed helps; so far as administratively possible, choice of the teachers to be employed in his building so as to have teachers who are fitted for his special problems; and the specific methods of work.

The superintendent's decisions should be sufficiently general and flexible as to apply to any school. The principal of that school will be the determiner of the details,—all within the outline limits set by the superintendent's interpretations and decisions. And yet when the superintendent fails to do his part correctly, the responsibility for the general outlines falls in part upon the principal. This does not mean insubordination. It means only that discussion on the part of all concerned out of which alone the truth and the correct methods will be discovered. This needs to be emphasized because of the undesirable effects of the over-subordination so clearly discernible in the school organization. Efficiency and democracy are both possible at the same time.

At the present time the principals are limited in too many ways. Principals of Mexican and Negro schools are required in too large measure to teach the same grammar, the same reading lessons, the same handwriting, etc., that is given in all schools. The work is often wastefully ill-adapted to the needs of the pupils. Instead of limiting the principal's freedom, he should be forced to take the initiative; and then held responsible by the others in supervisory authority.

THE HIGH SCHOOL PRINCIPAL.

The high school principal occupies a position of great responsibility. Within the high school is accomplished the most vital portion of the education of the best youth of San Antonio. Previous to entrance into the high school they have been mastering the tools and rudiments of knowledge. As they enter upon adolescence they begin to take on the adult points of view; and their serious education for adulthood may be said to begin. The four years from the age of thirteen or fourteen to seventeen or eighteen are the most critical of their educational years, even though they go on to college and professional school. It is at this age that their general outlook upon life will be shaped, their social and moral standards formed, their habits of body and mind largely fixed. The large majority of them will go

direct from the high school into the world of affairs without further training; and will therefore need to be well-equipped for their vocations, for their civic functions, their leisure occupations, etc.

While the superintendent bears large responsibility here, yet he has many other important things to do. The high school principal needs to see the situation of youth in the city in the same wide social way required of the superintendent. No less than the latter he needs to be a man among men, mingling with all social classes. On the other hand, better than the superintendent he should know the needs of adolescence. He should be concerned with laying out the details of the courses of study in all subjects in the high school. He is responsible for the totality of the work; he must therefore, lay down the lines of general policy for each of the high school departments.

Within any given department, the head of the department and the teachers will take their readings of the community needs and the recommendations of the building principal, and they will embody them in more detailed courses of study for the use of their special classes. They will, however, confine themselves within the limits laid down by the principal himself. His supervision will hold them there,—so long as he is right. When he is wrong, responsibility automatically falls back upon them, and upon the superintendent.

The high school principal should spend little time in his office during school hours. He should have no routine office work to do. The city cannot afford to pay \$3000 for work that can be as well done by a \$1200 clerk. The large problems of high school supervision are endlessly complicated and require the full attention and the full energies of the principal.

SUPERVISORS OF SPECIAL SUBJECTS.

The supervisors of special subjects will look to the needs of the entire city, just as does the superintendent; but each looks to but a special aspect of the city's life. This they will know intensively and minutely. Each should be the first author-

ity within the city as to the details of his subject. In a sense the superintendent approaches the special supervisors from the same direction as the layman. The superintendent sees the whole field in balanced proportion, and seeks to adjust every portion of the work to every other portion. But after laying out the general outlines, he has to leave to these assistants the arrangements of the details within the general outlines. Just as the general community and school board will supervise the superintendent, so the superintendent will supervise these specialists, to see that in the detailed workings of their department they are actually carrying out the general policies that he has from his wider interpretation of the science laid out for them. At present certain of these supervisors appear either to have too much freedom or the superintendent has not laid out the general outlines of policy within which their work must find itself.

Several of the special supervisorships in the city have grown out of extensions of the work of heads of departments in the high schools to the work of the grades. This is a thing that ought to be carried further. The heads of the high school science work might well be the supervisors of science teaching in the grades; the heads of the history work might well supervise history work all the way down; and so on with geography, civics, hygiene, mathematics, etc. It is a method of introducing vertical supervision alongside the horizontal supervision of primary supervisor, grammar grade supervisor, and principals of elementary and high schools. If they can get the scientific attitude of mind, there is no reason to fear conflicts of authority. Every difference of interpretation means friendly discussion until the truth can be found.

TEACHERS.

The teacher is to the families of the children in her charge what the principal is to the district, or what the superintendent is to the city. The teacher needs to be in social contact with the families so as to know the special problems relating to the

education of their children. She stands to them educationally in the relation that the family physician stands to them on the side of health. She cannot know how to adapt her labors to the situation of the children without being in contact with the families. She cannot rightly control motives. She cannot properly relate the supplementary work of the school with the fundamental educational influences about the children. The teacher should generally live within the district where she works; and she should know the district intimately.

This is said with full knowledge of the surprise with which such a recommendation is viewed by teachers. Education has for so long been within a social vacuum, and with such indifference as to whether the work of the school relates itself to the life of the community, that to teachers at least this absurd isolation seems perfectly right and normal. The discussion of previous chapters shows why teachers should know the lives and home conditions of the children as fully as she knows books and educational methods.

THE BUSINESS AGENT.

Of the various employees of the board the business agent appears to be the one best informed as to principles of modern management. His system of financial accounting is thoroughly modern. He is carrying the same principles into the other fields of educational accounting as they refer to pupils, teachers, bulidings, supplies, etc. He is attempting to set up standards of various kinds in the light of which to judge the efficiency of the work in its various aspects. More than any other within the system he appears to realize that impersonal standards of judgment and impersonal science should control in the making of all decisions.

The question of the proper subordination of the business agent in the literature of school administration remains unsettled. One writer would have him a co-ordinate of the superintendent under the board, looking after the physical administration; another would have him a subordinate of the superintend-

ent, looking after the material aspects of the things for which the superintendent is responsible. As a matter of fact, the question is of importance only so long as management is personal and arbitrary. In proportion as management becomes the application of impersonal scientific standards, the problem of the official subordination of the various individuals diminishes in importance. It is transmuted into the problem of the co-ordination of specialists of equal rank. The business agent then becomes simply one specialist among many, each having his special division of the work. Subordination is not a question that often needs to enter in. So long as his labors are in obedience to the dictates of the best information relative to the things with which he deals, there can be no personal authority that can be so good as the dictates of this well-studied information. Those in supervisory authority will keep in touch with his labors to see that it is so controlled.

SUPERINTENDENT OF BUILDINGS AND GROUNDS.

There is a fairly large quantity of pretty well-defined science nowadays relating to school buildings. This science refers to drainage of grounds, surfacing of grounds, school fences, arrangements of trees and playgrounds, the lighting of school rooms, heating, ventilation, cleaning of buildings, the control of blinds, the arrangement of the furniture in the rooms, the direction of light upon the desks, means of increasing the light where it is deficient, the height of black-boards, the quantity of black-boards, color arrangements of school rooms, aesthetic lines and proportions, etc., etc. These matters of science as they relate to school buildings are pretty well laid out in our books on the subject. Further, it is possible to have standards as to the number of square feet of black-board that can be repainted in a day, standards as to the cost per 100 square feet of calcimining rooms, etc., etc., which should control in the supervision of the work.

While things are generally well done, there was frequent evidence that this science is not always in active control of de-

cisions. The quality of the lighting could not remain such as it is in certain of the rooms if the obtainable information were actually at work. The color schemes now so often found would not longer exist after the first re-decoration. Black-boards would not be placed too high in certain rooms, too low in others, and superposed one over another in such unsightly fashion as in School No. 6. The stove jackets would not lack their asbestos lining. New additions to buildings would not be placed so as to destroy the lighting of the original building, etc., etc.

A superintendent of buildings and grounds needs to be pretty well-informed as to architectural science and design, sanitary science, particularly as related to schools, landscape gardening, and the relation of the buildings and grounds to the processes of education.

JANITORS.

In large measure the work of principals and teachers is the setting of conditions of right living as a fundamental means of education. Indispensable in this setting of conditions is the work of the janitor. He has much to do with the attractiveness of the rooms, the school grounds, and the general surroundings. He has large control over the lighting of the rooms, the ventilation, the sanitation of the buildings and grounds, etc. He has the task of keeping down dust, of disinfecting toilets and school rooms, of placing and adjusting school desks, of caring for the black-boards and erasers, of the general management of the basement in those schools that have basements, or regulating the temperature of the class-rooms. He needs to know the theory and management of systems of ventilation; how to oil floors and keep them in condition; the necessity of sweeping compounds and how to make them; the control of plumbing fixtures; precautions to take against the spread of fires, etc., etc. Merely to be able to sweep a room does not make a janitor. He too needs a fairly large amount of technical information. Science should rule in the janitorial department just as fully as in any other. The superintendent of buildings, the school

physician, etc., need to call the janitors together for instruction occasionally just as superintendent and principals call teachers together in Saturday institutes.

THE MEDICAL DEPARTMENT.

The medical department has been sufficiently discussed in the chapter on physical education. We wish here simply to point to the fact that this department is automatically disposed to follow the dictates of medical science as the basis of all of its work. In this obedience to science as the basis of its labors it sets a good example to the other departments of the educational organization. It is not true that science ought to rule here in larger measure than in other departments. It ought to rule equally throughout all the work.

Chapter X.

THE STUDENT POPULATION.

No attempt was made to ascertain the effectiveness of the schools, public, private, and parochial, in reaching all the children in San Antonio. The task is the elaborate one that confronts the census-attendance department, now that the legislature has passed a compulsory education law.

The School Census.

The nature of the school census will depend upon the purposes that it is to serve. Hitherto, in San Antonio, about the only purpose of the annual enumeration has been the apportionment of the state school fund. For this purpose the only information really needed was the number of students between the ages of seven and seventeen. Certain other facts have been obtained and tabulated, as for example: race, nationality of children, and distribution by wards, etc. These additional facts have been little used, however.

So long as there has been no compulsory education law there has been little reason for collecting other facts beyond the mere enumeration of children. With the passage of the present compulsory school law, however, there arise other purposes for taking and keeping the school census. These new purposes will demand other facts not hitherto necessary. Moreover, there will be a need of greater accuracy than that found in the usual school enumeration; and it will need to be a continuous twelve months accounting of the children, instead of merely a one month affair. The attendance department will need records to show where all the children of the compulsory school ages are to be found in any week of the year; records that will show for each pupil in what public, private or parochial school he is to be found; or if of compulsory school age and not in school records to show why he is not in school.

More than in the past the school-city will have to adjust the size of buildings and the number of sittings to the total school census population. They will need to know with accuracy the number of children in the district served by each school; and the number of children of the district that can be counted upon as a rule to attend private or parochial schools. As the population shifts and changes in different parts of the city, this continuous school census registration will permit the board to know beforehand how many rooms and seats will be needed for the work of any term.

The course of study, we are coming to see quite clearly, should be different for different races and classes of people, for reasons discussed in previous portions of this report. The census should show the nationality and occupational status of the people of each school district. Districts largely Mexican will need a curriculum that is in many respects different from that used by schools attended by children that are chiefly of American or German parentage, and *vica versa*. Different treatment should also be accorded to children of abnormal type,—the cripples, the tubercular, the mentally subnormal, etc. The census should show the numbers and the location of all of these abnormal and subnormal children.

On the census chart no facts should be gathered except those for which there is seen to be a useful purpose.

San Antonio is already gathering for that portion of the children now in the public schools about the proper assortment of facts; and is already using the greater part of such a permanent and continuous registration of school children as is needed by the census attendance department. The work now done simply needs to be built out so as to serve all of the different purposes. On the present card Form B, Application for Admission to School, are now obtained and on Forms D and E are now recorded the following facts:

- (1) Name of child (surname first).
- (2) Sex of child.
- (3) Certified date of birth.
- (4) Age in years and months.

- (5) Place of birth.
- (6) Name of parent or guardian.
- (7) Occupation of parent or guardian.
- (8) Residence, street and number.
- (9) School that he is attending.
- (10) Grade in school.
- (11) Physical condition.
- (12) Vaccination record.

On the census attendance record chart should be recorded the above facts and only about four others :

- (13) Race or nationality.
- (14) Mental condition, when other than normal.
- (15) Reason, if not attending school.
- (16) If employed, where and at what labor.

While such a list of facts is quite an extension of the number hitherto obtained on the census blanks, the purposes of obtaining them are now more numerous. It must be remembered further that for the 12,000 children now in the public schools these facts have already been gathered, excepting only the last four. The work already done should not be duplicated. For those 12,000 children the first census under the new law should simply be for the purpose of checking them up to see that they are accurate. Original records need to be obtained only from those children between seven and sixteen who are not in the public schools. For those beyond the compulsory school age but within the census age used for state apportionment, little is actually needed beyond the enumeration.

When this work is done the census attendance office will have as the basis of its accounting of the school children a card record of every child of compulsory school age in the city. The card lists should be classified by schools,—one set for each public, private and parochial school in the city; and one for children not in any school. The permanent and continuous census will then present a record for each school that will be an exact duplicate, so far as the list of facts extend, of the principal's office record cards,— the face side of the white cards Form E as revised. When a pupil is transferred from one school

to another, when he leaves for a private school, leaves school to go to work, or leaves for other purpose, notification will be sent in to the census attendance offices and this particular pupil's card can be removed from the office file of the school where it has hitherto been. When the report reaches the office of the pupil's enrollment in the school to which he goes the cards can then be re-filed in the proper place. Thus if the pupil does not report to the school to which he claims to be transferred the fact automatically registers itself in the office of the attendance offices. He can thus know exactly and at all times just where his efforts are needed for those already enrolled. The plan here recommended is simply an extension to the central office of the plan which is already in operation within the school between the classrooms and the principal's office. It is thus possible to keep an accurate up-to-date record of the children of the whole city that is to the entire city just what the principal's record is to his entire school.

Private and parochial schools need to be furnished with the necessary duplicate record cards so that their records may at all times exactly parallel those of the permanent census attendance records.

This record will be indispensable for the issuance of work certificates to those who have graduated from the elementary schools, are fourteen years of age or over, or who are otherwise exempted for this purpose from the action of the compulsory school law.

The continuous accounting of the school children herein recommended does away with the necessity of making an entirely new record of the children in the census enumeration of each year. For the present, however, it appears from the terms of the city charter and of the state school law there must be a complete census each year. This can be used for the purpose of checking up the continuous census and for correcting it by adding the names of all children found of compulsory school age who have not hitherto been registered, and for dropping off the list all who have left the city or who have attained an age beyond the upper limit of the compulsory school age.

Between these annual corrections of the census list the city will find at first a large and in part insoluble problem connected with keeping the list accurate. Families moving into the city having children of school age may not report, and they may easily not be discovered. Children coming of school age during the year may not be discovered until months afterwards. Families may move without any notice of destination, and children may be lost from the records.

Naturally the officer in charge of attendance will keep a lookout for all such unregistered children. He has no machinery however, short of a new complete census that will gather in all of these unregistered children. There is need of co-operation on the part of teachers, principals, supervisory officers, city police, owners of licensed moving and express wagons, etc. Until parents can be compelled under penalty to keep the authorities informed as to the whereabouts of all children of school ages a continuous census record can be kept moderately accurate only with a very considerable amount of labor.

Retardation.

In certain schools, owing to the influx of non-English speaking Mexican children, the number of retarded and over-age children is very large. For some time the city has been employing for certain schools a special teacher to take care of the individual needs of specially retarded children. In this respect, San Antonio has been following the best practice of the country. The new plan of employing the regular grade teachers for an extra hour per day for the work has much to be said in its favor.

One of the practical questions that arises is, What are the buildings in serious need of this work; and what are the ones that have little need of it. Table VII shows the percent of children over-age and under-age, rapid and slow, in each of the buildings.

Table VII.

Age-Progress Situation in the Schools of San Antonio.

	Young	Percent			Percent		
		Normal	Old	Rapid	Normal	Slow	
System	5.3	44.2	50.5	13.8	40.6	45.6	
Avenue E	14.0	50.0	36.0	49.1	21.9	28.9	
Eleanor Brackenridge	16.2	61.8	22.0	24.3	45.6	30.1	
Riverside Park	8.5	62.7	28.8	22.7	50.0	27.3	
Crockett	8.8	53.1	38.0	30.7	40.6	28.7	
Travis	10.3	60.6	29.1	21.4	41.3	37.3	
Highland Park	10.3	52.1	37.6	23.4	38.3	38.3	
Bonham	8.7	65.6	25.7	12.9	46.8	40.2	
Fannin	6.5	58.9	34.5	13.3	53.0	33.7	
Roberts-Beacon Hill	5.5	61.4	33.1	11.3	52.6	35.8	
Burnet	9.4	51.4	39.1	18.2	40.3	41.5	
Collins Gardens	3.4	42.6	54.1	33.8	29.7	36.5	
Margil	5.0	45.1	49.9	24.3	39.6	36.1	
De Zavala	5.3	50.4	44.3	17.0	46.3	36.7	
Smith	4.7	55.3	40.0	14.7	43.5	41.8	
Ruiz	2.9	59.6	37.5	7.7	54.8	37.5	
Harris	5.2	48.4	46.3	11.8	44.3	43.9	
Herff	7.5	53.0	39.6	7.2	44.1	48.6	
Bowie	2.1	39.1	58.8	24.4	30.4	45.2	
Austin	6.9	46.3	46.8	4.8	52.0	43.2	
Lamar	8.6	42.9	48.4	11.7	33.2	55.2	
Johnson	1.9	31.1	66.9	17.4	33.3	49.2	
Milam	4.8	43.2	52.1	8.9	31.1	60.0	
Briscoe	2.0	39.6	58.4	7.2	37.0	55.8	
Houston .....	.0	24.2	75.8	2.9	42.3	54.8
Brackenridge Memorial .....	.4	21.1	78.6	3.2	36.6	60.2
Gonzales	1.6	22.4	76.0	1.6	31.2	67.2	
Navarro .....	.3	19.5	80.2	2.3	31.7	66.0

Table VIII shows the excess or deficit in the progress of the pupils as compared with the average of the city. The buildings are arranged in the order of rank, those in which the progress is greatest being at the top. The last column shows the relative excess or deficit of progress as related to the average for the city.

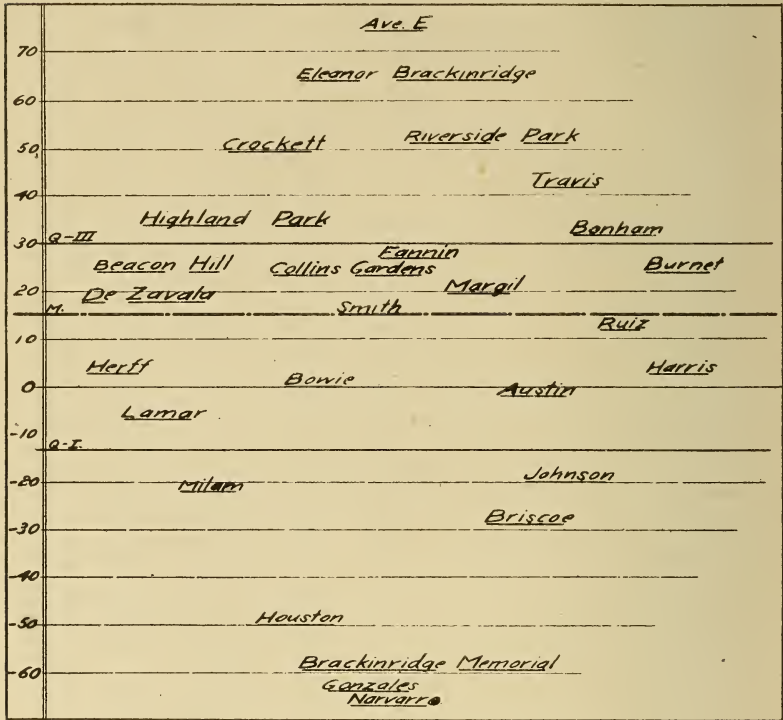
Table VIII.

Relative Standing of the Twenty-Seven Elementary Schools in the Progress of the Pupils Through the Grades

	Excess or deficit of percent				Coefficient of Stand'g
	Young	Old	Rapid	Slow	
Avenue E	8.7	14.5	35.3	16.7	75.2
Eleanor Brackenridge	10.9	28.5	10.5	15.5	65.4
Riverside Park	3.2	21.7	8.9	18.3	52.1
Crockett	3.5	12.5	16.9	16.9	49.8
Travis	5.0	21.4	7.6	8.3	42.3
Highland Park	5.0	12.9	9.6	7.3	34.8
Bonham	3.4	24.8	-.9	5.4	32.7
Fannin	1.2	16.0	-.5	11.9	28.6
Roberts—Beacon Hill .....	.2	17.4	-2.5	9.8	24.9
Burnet	4.1	11.4	4.4	4.1	24.0
Collins Gardens	-1.9	-3.6	20.0	9.1	23.6
Margil	-.3	.6	10.5	9.5	20.3
De Zavala .....	.0	6.2	3.2	8.9	18.3
Smith	-.6	10.5	.9	3.8	14.6
Ruiz	-2.4	13.0	-6.1	8.1	12.6
Harris	-.1	4.2	-2.0	1.7	3.8
Herff	2.2	10.9	-6.6	-3.0	3.5
Bowie	-3.2	-8.3	10.6	.4	-.5
Austin	1.6	3.7	-9.0	2.4	-1.3
Lamar	3.3	2.3	-2.1	-9.6	-6.1
Johnson	-3.4	-16.4	3.6	-3.6	-19.8
Milam	-.5	-1.6	-4.9	-14.4	-21.4
Briscoe	-3.3	-7.9	-6.6	-10.2	-28.0
Houston	-5.3	-25.3	-10.9	-9.2	-50.7
Brackenridge Memorial	-4.9	-28.1	-11.6	-14.6	-59.2
Gonzales	-3.7	-25.5	-12.2	-21.6	-63.0
Navarro	-5.0	-29.7	-11.5	-20.4	-66.6

Deficit indicated by minus sign; excess, without sign.

Chart X.



Shows relative standing of schools in the matter of retardation.

On Chart No. 10 is shown graphically the relative position of the various buildings in San Antonio. One can see at a glance where the pupils are backward in progress; where they are moderately forward; and where they are highly successful as compared with the usual practice of the city. Clearly it is at the Navarro, the Gonzales, the Brackenridge Memorial, the Houston, the Briscoe, the Milam, and the Johnson, where the heavy work with retarded children is most needed. Now that a compulsory education law is passed, the city cannot escape caring for these retarded children who are within the prescribed ages. The economical thing to do is to provide means for pushing them through the grades as rapidly as possible consistent with proper work.

At the other end of the scale, not a great deal of such work with retarded children needs to be provided at the Eleanor Brackenridge, the Riverside Park, the Crockett, Travis, Highland Park, Bonham, Fannin, Beacon Hill, etc. Since there are retarded children at each of these schools, there should be some provision for their needs, both for the sake of the children and for the sake of economy. The quantity of the provision should be adjusted to the quantity of the needs. In these schools less is needed.

In taking care of this matter, it should be kept in mind that the needs and standards of attainment are somewhat, or even considerably, different in different schools. The curriculum should therefore be adjusted to needs as a part of this work of accelerating the progress of the retarded children. Even in the same school, not the same standards of attainment should be set up for all the pupils.

Present Grade Distribution of Pupils.

The number of pupils on the class registers for November, 1914, by grades, is shown in Table IX.

Table IX.
Present Grade Distribution of Pupils.

Grade	Number of Pupils
High Eleventh	77
Low Eleventh	60
High Tenth	121
Low Tenth	150
High Ninth	145
Low Ninth	211
High Eighth	289
Low Eighth	377
High Seventh	278
Low Seventh	398
High Sixth	429
Low Sixth	554
High Fifth	572
Low Fifth	787
High Fourth	629
Low Fourth	858
High Third	779
Low Third	1040
High Second	926
Low Second	1132
High First	1192
Low First	2499

The table shows clearly that two things are needed, both of which are being provided at the present time. One is care for the retarded children to relieve the congestion in the lower grades. The other is the enforcement of the compulsory education law so as to prevent the pupils of the later elementary grades dropping out before their education is completed.

Chapter XI.

ELEMENTARY TEACHERS.

The elementary teachers of San Antonio are much under-trained. They have had on an average only 4.6 years of training beyond the elementary school. This is about a half year of normal training beyond a four years high school course. This is a full year of normal training less than the average practice of cities of the size and importance of San Antonio. Proper comparative data for cities of this class are not at hand at present. But Table X shows the average amount of training in twenty-two smaller cities (except Chicago) from which we have the facts.

Table X.
Training of Elementary Teachers.

City	Population in 1910	Years of Training
Gary	17,000	7.0
Norfolk, Neb.	6,000	6.5
Morgan Park	4,000	6.3
Winnetka	3,000	6.0
Booneville	4,000	5.8
Chicago	2,185,000	5.8
Oak Park	19,000	5.6
Russell	2,000	5.6
East Chicago	19,000	5.5
Norfolk	6,000	5.5
Aurora	30,000	5.4
Leavenworth	19,000	5.4
Mishawaka	12,000	5.2
Noblesville	5,000	4.9
Rockford	45,000	4.9
Joliet	35,000	4.8
South Bend	53,000	4.8
Harvey	7,000	4.7
SAN ANTONIO	96,000	4.6
Mt. Carroll	2,000	4.4
Granite City	10,000	4.3
Junction City	5,000	4.1
Mt. Olive	4,000	3.3

That the teachers of San Antonio are inferiorly trained is not a necessity. A later table shows that the salary standard is high enough to attract teachers who have had an average length of training. Simply the city has not set up entrance standards that are high enough. Graduates of the high school of the city are permitted to enter upon teaching practically without training.

The amount of training is quite different for the teachers of different buildings. In the Collin's Gardens School, the average training beyond the elementary school is 6.7 years, which is almost as high as that of the highest city in Table X. In the Highland Park School the training is 5.2 years beyond the elementary, which means an average of a full year and a quarter of normal school training. The city might well use the same method of getting teachers for all the schools that has been used in the case of these.

The schools where attention to getting better trained teachers is shown in Table XI.

Table XI.

Amount of Training of San Antonio Teachers, 1914-1915.

School	Years of Training
Collins Gardens	6.7
Highland Park	5.2
Houston	5.2
Harris	5.0
Ruiz	5.0
Bonham	5.0
De Zavala	5.0
Briscoe	4.8
Avenue E	4.7
Burnet	4.7
Milam	4.7
Crockett	4.7
Austin	4.7
Gonzales	4.6
Travis	4.6
Eleanor Brackenridge	4.4
Fannin	4.4
Roberts-Beacon Hill	4.3
Navarro	4.2
Riverside Park	4.2
Brackenridge Memorial	4.1
Johnson	4.1
Bowie	4.0
Smith	4.0
Margil	4.0
Lamar	4.0
Herff	3.7

EXPERIENCE OF TEACHERS.

The city has a moderately young body of teachers. They average 7.5 years of teaching experience,—total experience was counted. Relative standing as compared with these other cities is shown in Table XII.

Table XII.

Length of Experience of Elementary Teachers in 27 Cities.

City	Years of Experience.	City	Years of Experience.
Chicago	13.7	Greensburg, Ind.	13.0
Morgan Park	12.5	Rockford	10.9
Winnetka	10.8	Oak Park	10.7
Booneville, Mo. 10.3			
Junction City	10.1	Joliet	9.9
Russell, Kan.	9.9	Mishawaka	9.7
De Kalb	9.5	Aurora	9.3
Leavenworth, Kan. 9.2			
Mt. Carroll	8.4	Gary, Ind.	8.2
Harvey	8.0	Mt. Olive	7.6
SAN ANTONIO	7.5	Norfolk, Neb.	7.0
East Chicago			
6.9			
Granite City	6.9	South Bend	6.7
Noblesville, Ind.	6.2	Whiting	5.8
Maple Lake, Minn.	5.2	Bonner Springs, Kan.	3.7

TENURE OF TEACHERS.

While legally teachers are employed for yearly terms, actually their tenure is permanent. None are dropped from the rolls unless guilty of gross misconduct or inefficiency. In this respect the teachers of the city are altogether favorably situated; in fact too much so.

Notwithstanding this permanence of tenure, the teachers do not remain long in the service in San Antonio. Table XIII shows an average tenure of only 3.5 years. This is very low indeed. I lack the information that will account for it.

Table XIII.

Average Tenure of Elementary Teachers.

City	Years taught in City.	City	Years taught in City.
Chicago	11.1	Aurora	9.1
Rockford	9.1	Joliet	8.7
Leavenworth, Kan.	8.0	Greensburg, Ind.	7.6
Morgan Park	7.0	Mishawaka	6.6
Mt. Olive	6.6	Russell, Kan.	6.5
Winnetka	6.4	Mt. Carroll	6.2
Junction City, Kan.		5.8	
Noblesville, Ind.	5.5	Booneville, Mo.	5.4
Oak Park	5.2	De Kalb	5.2
Harvey	5.8	Granite City	4.2
South Bend	4.0	East Chicago	4.0
SAN ANTONIO	3.5	Bommer Springs, Kan.	2.4
Norfolk, Neb.	2.0	Maple Lake, Minn.	1.4

The brevity of tenure appears not to be due to the salary situation. Salaries are about on a level with average practice in cities of the country of the same population class as San An-

tonio. Table XIV shows that salaries in San Antonio are slightly in advance of those in Dallas, and very much above those of Houston.

Table XIV.
Salaries of Elementary Teachers.

Denver	\$960	San Diego	\$935
Salt Lake City	830	Youngstown	800
Grand Rapids	800	Lowell	800
Des Moines	800	Nashville	780
Albany	750	Covington	750
Duluth	750	Evansville	750
Cambridge	750	Lawrence	750
SAN ANTONIO	720	Dallas	704
Dayton	700	Utica	700
Fall River	700	Canton	700
Kansas City, Kan.	684	Trenton	680
Savannah	675	Troy	650
Houston	630	Schenectady	600
Saginaw	600	Richmond	595
Charleston	572	Manchester	550
South Bend	540	Reading	510

THE TRAINING SCHOOL.

All the discussions of this report indicate the desirability of having teachers who are intimately acquainted with the city. Naturally it is those who grow up in San Antonio who ought best to know the city. Training and supervision being equally efficient, the so-called home-teacher is preferable to the transient teacher who comes usually with no intention of making the city her home, nor of allying her permanent interests with those of the city. Under such circumstances her work tends naturally to be abstract and unrelated to the needs of the district of the city to which she is employed to minister. With a tenure in the city

of only three and a half years, it would take a good part of this time to get acquainted; so she neglects to do so usually, satisfied with a world of her own apart from the community world in which live the children committed to her charge.

On the other hand, the authorities tend to be far more lenient in setting up and holding to standards of preparation for the "home-teachers" before letting them into the service; and also under usual conditions superintendent and principals are less free to enforce high standards of work on the part of the "home-teachers." Influential members of the community are often more interested in the personal wishes—we cannot say welfare—of their friends than they are in the welfare of the schools.

San Antonio is clearly suffering from both of these evils. The so-called "Training class" which supposedly trains the graduates of the local high school for the grade positions is scarcely a class in the usual sense of the term. It has no study-place, no regular teachers, no textbooks, no assigned library reading. It is simply a loose apprenticeship system, in which the teachers-in-training pick up what information they can through observing and helping in the class-rooms for a half year. They come with no previous professional study whatever. They cannot observe intelligently since they do not know what to look for nor how to judge what they see. They can learn how to do things rule-of-thumb. The plan offers nothing more. Such a system of inducting unprofessionally taught high school students into the elementary schools accounts for much of the mechanization of the work observed. The mechanical aspects they can see and imitate. The reasons for it all, the possibilities of adjustments to meet the needs of different types of pupils, they cannot see.

The thing needed is clear. As the city develops strong vocational courses in the high school for merchants, clerical workers, household workers, mechanics, laundresses, manicurists, etc., it would be advisable that they also draw up a parallel high school course for those who are to be teachers; and to accept no graduate from the high school as a teacher who has not taken that course.

The general high school work for these students could be condensed into a three-years' course, and the fourth year given wholly to professional studies. When they entered then upon their half year of observation they could have something to look for, some power of judging what they should see, and some power to profit by what they see. This half year of observation and class-room assistance should be under the joint direction of the teacher of the subject in the high school and the building principals of the buildings where they are sent. Though scattered among buildings while observing, they should still remain a class for periodic meeting at the high school for discussions and conferences.

The instructor in the high school should be in ability and training about the fourth man in the system from the top. He ought to be the second assistant-superintendent having special supervisory charge of the first-year teachers. With this arrangement each teacher entering from the San Antonio high school would have had two and one-half years of systematic training but without taking any more years for it than under present plans; one year in the high school; one-half year observation and practice-teaching, and one year probationary teaching under the supervision of the man responsible for her continuing training.

APPOINTMENT OF OUTSIDE TEACHERS.

It was observed that even in the case of teachers employed from outside the system, there is the problem of holding to sufficiently high standards. These outside teachers are so often induced to come to the city by friends living in the city who have influence with the authorities. The remedy is pointed out in Chapter IX, of this report. The city should make definite decision as to the minimum of normal school training that will be accepted; then place upon the superintendent all responsibility for decision as to whether this minimum has been reached in the case of any applicant; and all responsibility for judgment as to attainments. Since the superintendent is to be held responsible

for the work of the teachers, responsibility for initiative in appointment and for recommendation should be definitely placed upon him.

SUBSTITUTE TEACHERS.

It is much more difficult to go day after day into unfamiliar rooms to teach strange classes than it is to teach a regular class. It seems strange therefore that this most difficult type of work—most difficult of all if it is well done—should be given into the hands of those who are confessedly the least trained, the least experienced, and the least qualified teachers in the system; namely, the apprentices just entering the service.

Two things can be said with absolute confidence:

1. Substitute teachers should be strong experienced teachers. A certain number of such teachers, based upon the number of calls daily received should be assigned to this service. This number can be chosen so as to have them employed in substitute work most of the days. On the occasional days not called for, they can be required to do special individual work with retarded children at those buildings that are specially in need of it. It is generally possible to have a reserve corps of capable experienced substitute teachers made up of former teachers in the service, married or unmarried, who yet live in the city but who do not wish full time service.

2. **Beginning teachers should be placed so that their first teaching should be under the most normal and regular conditions possible.** In the beginning especially their work should be carefully planned, orderly and sequential. They should, by doing superior work from the first day of their service become habituated to doing nothing other than superior work. Above all things their professional conscience should be fortified against doing careless, unplanned, slipshod, purposeless work. They need to take a professional pride in the fact that they began on a high level and have held consistently to it.

To take young teachers in professional need of such auspicious and favorable beginnings and then to demoralize them by substitute work in which they are forced into daily

tasks that are of necessity for them unplanned, time-marking, and purposeless, is to do just the thing that of all things should not be done. To call it professionally criminal against both the teachers and the children is to put the thing sufficiently mildly.

TRAINING TEACHERS DURING SERVICE.

The chief training during service occurs in connection with the monthly Saturday all-day institute. For most of the time the teachers are receiving instruction from the supervisors of special subjects from the grade-leaders, who are principals assigned to special supervision of regular subjects. From inquiries it appears that no institute occurred during my visit—that the time is largely devoted to detailing the course of study topics in each subject that are to be covered during the succeeding month. The same thing is given to all teachers, experienced and inexperienced, those coming from American schools and those from immigrant schools. This plan of work takes vital responsibility for thinking off individual principals and teachers, and tends to uniformatize and mechanize the work.

It is my opinion that each principal should be pretty fully responsible for the training during service of the teachers within his building; and that the superintendent should be just as fully responsible for training his principals so that they can in turn train their teachers efficiently.

Responsibility for thinking should be taken off neither teachers nor principals. The training of teachers in service by principals and the training of principals by the superintendent should deal chiefly with the principles of educational science which are to be used by all concerned in guiding the details of their work. The present methods of training produce mechanical rule-of-thumb teachers. In an age of science it would appear that that profession which is set apart to teach science to the world in general should use it themselves as the guide to their labors. We cannot here go into details of the plan. A superintendent and principals who have the ability to do the work will have the ability to plan it.

Chapter XII.

THE HIGH SCHOOL.

The main aspects of work of the high school have been pretty fully discussed in the various chapters of this report. We wish here to touch only upon a few matters that have not been mentioned.

The city's annual investment in the high schools, including interest and depreciation, is well above \$80,000. Men in a business community do not usually invest \$80,000 a year without knowing pretty definitely what they are spending the money for. They must know this before they can give their approval. Presumably, therefore, the people of San Antonio have formulated in their own minds the purposes for which they are investing so large a sum of money.

It is always interesting to know what the public values most highly in the high school work. This can be learned by examining into the way they distribute their investment. The things in which they invest heavily they value highly; to the things in which they invest but moderately they ascribe but a moderate value; and to the things of little investment they ascribe but little value. Now, in what things is San Antonio investing her money, and how is the money distributed? Our interest here is not financial; we wish merely to find relative community valuations of the different portions of the high school work. Using the most accurate figures available, covering instruction only for the past year, it appears that San Antonio is distributing each \$1000 over the different high school subjects in about the proportions shown in Table A.

Table A.

The portion of each \$1000 expended for instruction in each of the high school subjects.

English Composition and Literature	\$ 204
Higher Mathematics	170
The Sciences	131
History and Civics	106
Modern Languages	103
Household Occupations	97
Shopwork and Mechanical Drawing	63
Commercial Subjects	53
Latin	52
Public Speaking	19
Music	4
Physical Training	0
Drawing and Design (not mechanical)	0
Total	\$1000

This distribution of the community investment over the high school subjects raises many questions which a community ought to answer for itself. Why should literary analysis and expression so greatly outrank everything else in value? Why is it worth twice as much as history and civics? Why fifty per cent more than science? Why is an understanding and appreciation of literary art worth fifty times as much as an understanding and appreciation of musical art? This ought to be challenged by the musical organizations in San Antonio. Why is abstract higher mathematics of a type that is used by very few considered of much more value than anything else, except English? Why is it worth twice as much as household training, and three times as much as shop or commercial training? Why should a city's money be invested so heavily in mathematics of little value and not at all in physical training, a matter of high value? Is not music really worth as much as Latin? Are not drawing and design as valuable as Mediaeval history?

It is not for an outsider to suggest answers to these questions. The community, however, that pays the bills should not rest easy until it has carefully considered whether it is distributing its money wisely or not.

Another basis for judging the community valuation of the different studies is the distribution of the time of the high school students. Presumably these students are distributing their time in ways approved by their parents. The total time expenditure in class during the past semester was 431,956 student-hours, a student-hour being the class-time of one student for one actual hour of sixty minutes. The distribution of each 1,000 student-hours over the different subjects was as shown in Table B.

Table B.

The distribution of each 1,000 student-hours over the various subjects.

English Literature and Composition	243	student-hours
Algebra and Geometry	200	student-hours
The Sciences	154	student-hours
History and Civics	102	student-hours
Household Occupations	92	student-hours
Modern Languages	73	student-hours
Shopwork and Mechanical Drawing	48	student-hours
Latin	40	student-hours
Commercial Subjects	41	student-hours
Music	7	student-hours
Drawing and Design (not mechanical)	0	student-hours
Physical Training	0	student-hours
Training of Elementary Teachers	0	student-hours
Total	1,000	student-hours

There are some reasons for thinking this a better index of community valuations than the investment-index. It represents what the community actually demands in terms of units of work.

If not this, it does represent what the community actually chooses or at least accepts for its children. It shows that the balance of student-time expenditure is about the same as that of the financial expenditure. About the same series of questions again arise.

How economical are the expenditures for the various subjects? Taking cost of instruction only, the cost per 1000 student-hours for teaching the various subjects is shown in Table C.

Table C.

**Cost per 1000 student-hours of instruction in
the various high school subjects.**

Modern Languages	\$114 per 1000 student-hours
Latin	103 per 1000 student-hours
Shopwork and Mechanical Drawing	103 per 1000 student-hours
Commercial Subjects	103 per 1000 student-hours
Public Speaking	98 per 1000 student-hours
History and Civics	83 per 1000 student-hours
Household Occupations	83 per 1000 student-hours
Mathematics	69 per 1000 student-hours
Sciences	68 per 1000 student-hours
English Literature and Composition	67 per 1000 student-hours
Music	40 per 1000 student-hours

The city is paying very different prices for the same amount of work in different subjects. The price paid for modern languages is 70 percent higher than the price paid for an equal amount of English. It is 68 percent higher than an equal amount of science; 65 percent higher than mathematics; 37 percent higher than household occupations or history and civics; considerably higher than commercial and shop subjects. Is this because modern languages are worth so much more, or because of maladjustments in the work of the high schools? It is difficult enough in our previous discussions to grant the equality of value of foreign languages for most students; it certainly is not possible to grant this superiority of value.

Latin also is another drain on the community. Why should the city have to pay over 50 percent more for Latin than for English, science, or mathematics? Why pay 25 percent more than for household occupations or history and civics? The value of the Latin is actually far less than these other subjects. Is there mismanagement in the high school, or is somebody "putting something over" on the city?

Is the burden of the work equitably distributed among the teachers of the different departments? To answer this question we must note the length of the teachers' working week, and the average size of classes. It is not possible at present to measure that portion of the teacher's working week that is spent outside of the class-room. We have, however, the number of hours per week assigned to regular work in the class-rooms. Table D shows the relative burden.

Table D.

Average size of classes and average number of weekly teaching hours (full 60 minutes) for each full-time teacher.

	No. Student- hrs. per week per full-time teacher	Average Size of Class	Average No. of hrs. taught per week per full- time teacher
Music	(823)	38	(21.5)
English	629	28	22.4
Mathematics	622	27	23.4
Science	543	25	22.0
History	489	24	20.8
Public Speaking	440	22	20.0
Latin	402	19	21.5
Commercial Subjects	386	18	21.8
Modern Languages	343	17	20.7
Mechanical Drawing	321	14	23.1
Household Occupations	316	15	20.8
Shop-work	266	12	22.9

The classes in half the subjects average fewer than twenty students per class. With proper accommodations and equipment, there can be no justification for this. It is difficult to see any reason why the Latin and modern language classes should run smaller than science classes. If the language classes were so increased, more than two full-time teachers could be dispensed with, and two class-rooms saved for other uses. This one adjustment would save the city \$3,000 a year. Not only would two rooms be saved, but enough money to build an additional room each year. When the high schools are becoming so congested, the thing is worth considering. With classes a half-year apart in progress, and with few sections on each level, teachers will generally say that it cannot be done; or that it is educationally inadvisable to do it. The contention will usually mean that it is easier not to make such adjustments than to make them. To let things drift mechanically requires neither thought nor labor; to adjust the size of classes to the demands of efficiency requires both thought and labor. But with both thought and labor, desirable adjustments can always be made. In certain subjects on certain levels, new sections will begin yearly, not semi-yearly. Where small classes are unavoidable, as will occasionally occur, they can meet fewer times per week for the same amount of work; or they can meet for shorter periods for the same amount of work. The unnecessary foreign language waste can be saved by such adjustments; and the community should see that it is done.

The small size of most of the vocational classes has been necessitated by the size of the rooms supplied them. With the completion of the new practical arts building, the defect can be remedied. These classes ought to run on an average as large as twenty students per class. If they are compelled to run smaller because of a lack of sufficient equipment, it is very false economy. The cost of extra teachers is in the end far greater than the cost of equipment for an additional five students per class.

TRAINING OF THE TEACHERS—SUPERVISION.

The average amount of training of high school teachers in the Main Avenue high school is six and one-half years beyond the elementary schools. This is a year and a half short of a full college course, which is coming to be regarded as the minimum desirable training of high school teachers. The thing desired of course is teaching efficiency; and the efficient teacher with no higher training is to be preferred to an inefficient college graduate. But all things else being equal, a teaching corps that averages eight years of training beyond the elementary school is to be preferred to one that averages six and one-half years. How San Antonio stands as compared with certain cities from which I happen to have figures is shown in Table E.

Table E.

Training of High School Teachers.

	Years beyond Elementary School.
Des Moines	8.9 years
Peoria	8.3 years
Gary, Ind.	8.1 years
Aurora, Ill.	8.1 years
Indianapolis	8.0 years
Rockford	8.0 years
Elgin	7.5 years
St. Joseph	7.2 years
Leavenworth	7.0 years
Oklahoma City	7.0 years
SAN ANTONIO	6.5 years
Kansas City, Kan.	6.4 years

Deficiency in the usually accepted amount of collegiate training should be considered in relation to the effectiveness of the work of individual teachers. Where the work of a teacher is efficient, the work is not demanding further training. Where it is inefficient, then further training of some kind is needed. Sometimes they should be encouraged or even required to take summer courses, or take a leave of absence for further training. More often, however, for experienced teachers long in the service, the thing needed is supervisory training. The supervision on the part of principal and head of department that will strengthen the weak places in a teacher's work is the best possible training for that teacher. The best place to train one to do efficient work is where that work is being performed. The principal has a large opportunity, and bears an equally large responsibility. At present there appears to be very little supervision of the work of the high school. The thing most needed is not more training of the teachers but a larger quantity and a more intelligent quality of supervision by the principal of the high school.

Since the Junior high school constitutes the first semester or two of the total four years high school course, the two schools should be organic parts of one organization. One principal should be responsible for both schools; though a vice-principal would be needed at the Junior school. The head of each department should be responsible for the work of his department in both schools; and should actively supervise.

THE LIBRARY.

Attention has been called in other chapters to the library needs. At present the Brackenridge high school has no library worth mentioning; and the Main Avenue very little indeed except for the fairly generous supply of supplementary literature sets for the English classes. The room used is so small as almost to render useless the small amount of library actually possessed. The room seats only sixteen students. The entire study-room should be the library reading room. This could be managed with

entire ease if the high school authorities made up their minds to make the library as serviceable as possible.

One of the absurdities was to find the library closing at two o'clock in the afternoon. As a matter of fact, it is from two to four, the two hours just following the close of the daily session, that ought to be the busiest hours for the library. With the pupils taught how to study; and with the necessary study materials supplied by the library, and the necessary study-room, these two hours of use ought greatly to increase the effectiveness of the high school work with a very little increase of the cost.

The high school libraries should not be made the depositories of old and worthless books given by well-intended but mistaken patrons. The choice of all books should grow naturally out of the high school work; and every book should be retired from the shelves that is not actively used in furthering the work. Benevolence should be encouraged to sell its obsolete books at the second-hand store and donate only new and modern books demanded by the school work.

HIGH SCHOOL BUILDING ACCOMMODATIONS.

The Main Avenue high school is running full capacity, it is claimed, and will need a considerable increase in the number of rooms for the coming year. The high school principal is recommending that a large neighboring dwelling-house be rented for the purpose. This is not the entirely inevitable solution. The high school buildings are not now running full capacity. The daily session closes at 2:05 P. M. Owing to the city's being so far west of the meridian of central time, this is as early as 1:30 P. M. in St. Louis, or 1:00 P. M. in Columbus, Ohio. The high school session closes with full four hours of daylight ahead on the shortest day of the year. There is no reason why the sessions might not continue for an additional two periods, or until 3:35. This would permit an additional 60 classes per day at the present time; and an additional 80 classes when the new building is completed. This will take care

of an increase of 300 students. Were the session continued until 4:20 P. M.—and there is no reason why not,—then the buildings might take care of an increase of 400 students.

In extending this time of use of the building, it is not necessary to extend the teachers' work-day. As judged by usual practice throughout the country, this is now long enough for those whose class-work requires outside labor. Simply, certain teachers will report at 8:30 as at present, and finish their periods at 2:00 or 3:00 P. M. Others will not report until the beginning of the third morning period, their day then continuing until the end of the daily session.

Other teachers whose work is of a type that requires little outside preparation of materials and little paper work can be given a six or seven hour day without making their labors any heavier than those of teachers who must give from two to four hours a day to out-of-class labors. There should be some such equation in the labors of the different departments.

With present study-room and library accommodations, the plan recommended is more difficult to manage in the matter of handling the students **in the middle of the day**,—if they are expected to remain at the building as many hours as at present. It is possible to permit many students,—those who have learned how to study—to return home at the end of five periods. Those of this type who come at 8:30 may well leave at 12:30. Those who first appear at 12:30 can have another five periods before 4:30. Such a plan would fit in well with the needs of students who desire to give a half day regularly, morning or afternoon, to remunerative labor. For obvious reasons many students would have to be at the school six or seven periods,—appearing early and leaving early, or appearing late and leaving late. In proportion as this number is large, fairly large study-room accommodations would be necessary for the middle periods of the day. Under present conditions it is this perhaps that will determine the maximum number of students that can be handled with present buildings if the sessions were extended two or three periods.

If the school city will add teaching equipment so as to

facilitate the work,—books, magazines, maps, charts, apparatus, etc.,—it will often be possible to increase the size of classes without detriment to the work or without adding to the burdens of the teachers; and thus gain additional rooms.

While various adjustments ought to be made in the immediate present, yet it remains perfectly obvious that the time has come for the city to study the problems of housing the high schools with a view to planning the construction of modern high school buildings in the near future. The problems are very numerous and complicated. They ought therefore to be discussed very fully by the city before decision is made. Any suggestions made here are merely for contributing to the discussion; we have not the facts sufficient for making definite recommendations. The problems may be indicated by a series of questions.

1. Shall there be one very large central high school, or shall there be two schools,—one on one side of the city, and the other on the other? The size and importance of this problem becomes evident as one looks to the future,—ten and twenty years hence.

2. If two high schools, shall they be of similar type, each offering a full round of opportunity to its side of the city? Or shall they be somewhat specialized, one being of the so-called English-classical type, and the other of the scientific-technical type?

3. How far shall the uses of such buildings as civic and social centers be influential in determining the location of the buildings?

4. How make sure that the grounds are selected and the buildings designed so as to take care of the full round of educational needs of the youth of the city,—vocational, physical, civic, social, recreational, etc.? This is in fact the central problem. If the educational experts in the system will carefully analyze out all of the educational factors entering into the problem and on the basis of such scientific information will formulate well-rounded constructive plans and policy, they can get what the city needs. If they have nothing to present but wishes, general impressions, and unsystematized personal opinions, they are likely

to be in large part over-ridden by those who are seeking personal advantage.

5. How prevent the sacrifice of educational utility in the interest of building symmetry and of imposing architectural proportions? There is but one way,—**general intelligence as to educational needs**, and an abundance of specific intelligence on the part of the school people. Art, simplicity, and utility thrive well together where cultivated intelligence can hold sway.

6. Would it not be advisable to arrange for a half dozen intermediate schools scattered judiciously over the city, each containing the seventh, eighth, and a portion, at least, of the ninth grades; and then a central specialized high school for the final years of training? In very many ways this plan would be a distinct improvement over the usual one. Its value is not so evident on the surface at the present moment; this will appear ten and twenty years hence as the high school develops, differentiates, and becomes a people's college.

Chapter XIII.

BUILDINGS AND EQUIPMENT.

The city has a considerable building program immediately ahead of it. The rapid growth of the city is necessitating quite a number of additional rooms each year. The passage of the recent compulsory education law also will bring into the schools a considerably increased number of children.

The present high school plants are altogether outgrown. In a short time one or two new high school buildings will be required.

Building Plans.

One of the most serious building problems confronting the board at present relates to the general type of plan of building best adapted to San Antonio conditions. After looking over the buildings of the city, it appears that the experience of the past forty years of school house construction, has gradually evolved a type of building in the Crockett School which points clearly to the next step in the evolution of building types.

Buildings must be adapted to climatic conditions. **They should look primarily to those climatic conditions that are the most trying; and only secondarily to those less so.** In a cold climate the most trying conditions are the rigors of the winter. Buildings must therefore be adapted primarily to the demands of winter conditions. They can then be made to serve sufficiently well for the relatively few weeks of hot summer weather.

Since they are built for winter conditions, it is desirable to have as little outside exposed surface as possible. Especially is it desirable that there be only enough window space for light. Since windows are not to be much used for air, they may best be all on one side of the room. The familiar square type of building will serve, since it is compact. Rooms are expected to be kept closed nearly all of the time, both those that open out of doors as well as those that open into the corridors. Ventilation is to be by forced draught, and the lighting is to be unilateral.

Most of the books on school buildings treat only the requirements of buildings in a cold climate.

In a Southern climate like that of San Antonio, the most trying conditions are not those of the short, mild, winter but those of the long sultry summer. Buildings must therefore be primarily adapted to the demands of the trying summer conditions. They can then be made to serve sufficiently well for the relatively few weeks of cool weather and the relatively few days of actually cold weather. For most of the year rooms are to be kept well opened. Ventilation is not mainly a question of the mechanical delivery of thirty cubic feet of air per pupil per minute for the sake of atmospheric purity. It is mainly a question of getting all the air that is moving for the sake of coolness and physical invigoration. Rooms cannot well be placed in double series along a central corridor, since each series shuts off the air of the other. If both open full into the corridor and also outside, so that air currents can sweep freely through the building, air conditions can be made entirely satisfactory; but the problem of noises and visual interferences then enters in. The Southern climate does not demand the compact, small surface building; quite the contrary, it demands a building in which the rooms open out upon the free air on as many sides and as fully as possible, consistent with other necessary conditions. School building theory relating to general plans, as written in our books on the subject, do not generally relate to climatic conditions like those of San Antonio.

San Antonio must be studied in and for itself in determining a general type of building that is satisfactory for its own peculiar conditions. In considering these conditions, there are certain climatic factors that must especially be kept in mind. These are : (1) Climatic temperature; (2) direction of the wind; (3) velocity of the wind; (4) the relative percentage of days of sunshine; (5) the direction of the sunlight through the school hours. We must examine each of these as they apply to the building situation in order to find out what appears to be a building suited to the climatic conditions of San Antonio.

Table XV shows the mean hourly temperature for each of the months of the year as furnished through the kindness of the San Antonio Weather Bureau:

Table XV.
Mean Hourly Temperature in San Antonio.

	A. M.				P. M.			
	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00
January	48	51	54	56	58	61	62	65
February	49	51	54	57	58	60	63	64
March	57	62	65	68	70	72	74	75
April	64	67	70	72	74	75	77	77
May	71	74	76	78	80	82	83	83
June	78	81	84	86	89	91	92	92
July	79	81	84	87	89	90	91	91
August	80	83	86	88	89	92	93	93
September	76	79	82	85	87	88	89	89
October	66	69	72	74	76	78	79	79
November	56	60	63	65	67	70	70	70
December	49	51	54	56	58	60	61	62

Temperatures for the entire year are shown because of the fact that with the introduction of summer schools, the school is becoming a twelve months affair. This is a condition that is sure to increase rather than diminish, since as school work is made active, normalizing, and healthful, the school is as good a place for city children in the summer as anywhere else; it should be better. The table shows that the school should be as open as possible for at least eight months of the year. It shows that the weather in January, the coldest month, is really on the whole very mild. Evidently buildings that are constructed to take care of the trying summer conditions, can rather easily be adapted to the conditions of so mild a winter.

The temperature of winter occasionally goes considerably below the mean shown in the table; but it is rare that it goes below freezing, and then the cold is of short duration. This is

shown by the figures of the weather bureau covering the ten year period from 1900 to 1910. During the ten years there were of the months of January 310 days. On one day out of the 310 the mean daily temperature was 23 degrees. On one other day it was 31 degrees. These are the only two days in the ten years when the mean daily January temperature of San Antonio was below freezing. The number of days having each level of temperature is shown by Table XVI.

Table XVI.

Number of January days, 1900-1910, at each level of Mean Daily Temperature.

Temperature	Number of Days.
75 to 79 degrees	0
70 to 74 degrees	22
65 to 69 degrees	25
60 to 64 degrees	47
55 to 59 degrees	54
50 to 54 degrees	70
45 to 49 degrees	38
40 to 44 degrees	26
35 to 39 degrees	16
34 degrees	3
33 degrees	4
32 degrees	3
31 degrees	1
23 degrees	1

The table shows that the temperature for most of the days was between forty degrees and seventy-five degrees; that in only a relatively small percent of the cases did the temperature drop down below forty degrees. While the colder months are on the whole very mild, it must be noted on the other hand, that the warm months of the long summer are sufficiently sultry during the mid-day and afternoon. If we take seventy-five degrees as

the point at which the heat begins to become oppressive and physically undesirable unless the rooms are well opened and the air in motion, then Table XV shows that for 45 percent of the school hours of the entire year the heat is such as to demand the greatest fulness possible of open air conditions.

The figures of the Weather Bureau show clearly that buildings in San Antonio must look primarily to provision against sultriness, and only secondarily to provision against cold. The almost universal remedy for sultriness is keeping the body bathed in moving currents of air. It is by so controlling conditions as to keep the air in motion. An electric fan does not cool the air; it simply sets it in motion. Electric fans for the purpose at the present time are scarcely practicable for schools. Even if they were, San Antonio does not need them, where buildings are constructed so as to permit the free passage of the invigorating south-east Gulf breeze. During the warm months of summer this breeze is very constant. The records of the Weather Bureau show that from April to October the prevailing wind is from the south-east every hour in the day. Only at rare intervals and for very short periods is this almost absolute uniformity disturbed during these summer months. The mean velocity of the wind is shown in Table XVII, for each of the hours of the school day.

Table XVII.
Mean Hourly Wind Velocity.

	Mar.	Apr.	May	Jun.	July	Aug.	Sept.	Oct.
8:00 A. M.	7	7	7	6	6	5	5	6
9:00 A. M.	9	9	9	8	7	6	6	6
10:00 A. M.	10	10	9	8	8	7	7	8
11:00 A. M.	11	11	10	8	8	7	8	8
12:00 Noon	11	11	10	9	8	8	8	9
1:00 P. M.	11	11	10	9	9	8	8	8
2:00 P. M.	11	11	10	9	9	8	9	8
3:00 P. M.	11	11	10	9	9	9	9	8
4:00 P. M.	11	11	10	9	9	9	9	8
5:00 P. M.	11	11	10	10	9	9	9	8

This table shows that for every hour of every sultry day, it is possible to have an invigorating breeze through the school rooms if only they are constructed so as to permit the free passage of the air; and if the arrangements of trees, shrubbery, and neighboring buildings are such as not to obstruct the free passage of the air.

Returning now to the topic of building plans it is felt that the recently introduced "square" plan of building does not sufficiently take into consideration these climatic factors. It is an imported northern building, good for a cold climate only. Not enough of the rooms are open toward the south-east, east, and south. But even when open toward the south-east, this alone is not sufficient. Rooms must also be equally open on the opposite side. Air can enter only in so far as there is provision for its exit on the opposite side. The partial provision of a single transom on the opposite side of the room is insufficient for two reasons. It is not large enough. It is placed so high above the pupils' heads that they must sit in still air while the currents pass over their heads from window to transom, or from transom to window, according to the location of the rooms. To sit near an electric fan, but outside of the current will not cool one in the slightest degree. One must sit within the air-current. It is not different in the case of the south-east air current from the Gulf. The pupils during the hot months must sit in the currents in order to secure any of the physically beneficent cooling effects. The air should pass level across the room where the pupil sits. However sufficient unilateral windows may be in a cold climate where lighting is the only window problem, it cannot possibly be sufficient in a city located like San Antonio. Here rooms must be open on two sides at least, on the level of the pupils. This does not necessarily mean bilateral lighting. It is possible to construct rooms so that they can be open on both sides but shaded on one side, thus adapting them for both light and air.

If in a building of the recent type the corridor walls were open on the levels of the pupils' desks so that the breezes from the south-east could sweep through and bathe the pupils continuously where they sit, both the lighting and air problems would be

taken care of in the case of those buildings where the windows face east and west. Although the rooms would be open on both sides, they would be lighted on but one. A little observation of such a building as now constructed, will show that such a plan would not be practicable. With class-room doors open into the corridors and the work of the various rooms in full blast it can be noted at present that the corridors are resonators and that the sounds from any part of the building penetrate to every class-room. Were corridor walls further opened, the interferences of sounds would be aggravated and the work of the class-rooms too much disturbed. Classes moreover, in opposite rooms would be visible to each other. Such auditory and visual distractions to attention are highly undesirable. As school rooms are made to open on both sides they must not be made to open into each other. It certainly appears that the square type of building recently introduced into San Antonio cannot be made to take care of the air needs without introducing other very undesirable features.

Another of these undesirable features inherent in the present type of building is the direction of the lighting. South lighting as in the New Beacon Hill School or the Douglass School is scarcely permissible. If during the hot months one shuts off the glare by means of translucent blinds, one gets the light but the air is shut off. If awnings or Venetian blinds are used so as to permit the entrance of air, then the light is shut off. It is scarcely possible to manage the windows facing the south so as to make them fully available for both light and air.

Because of the great amount of sunshine in San Antonio and the general clearness of the skies, windows receiving north light can always be full open without ever permitting the glare of direct sunshine. Such windows can be used equally for light and air. Owing to the outer brilliance of Texas light most of the year, the objections to north lighting mentioned in the books that are reasonably valid for northern cities do not hold for San Antonio. By employing a large window surface as is now used in the new type of building, the north light will be sufficient even for the relatively short periods of cloudy weather.

East lighting is not good for this city. San Antonio lies so far west of the meridian that the sun finds itself about forty minutes behind the clock. Since the schools open at the usual hour, this means that they open very early as judged by the sun's position—the equivalent of opening at 8:20 in St. Louis, or 7:40 in Columbus, Ohio. In other words, San Antonio schools have a very great amount of morning sunlight. In the warmer months, the rooms should be well open. If they face the east, the difficulty is like that of facing the south. It is practically impossible to provide equally well for both light and air.

West lighting is good just because of the fact that the sun runs so far behind the clock. This means that on the basis of the sun's position the schools close very early. Windows open to the west can be open full almost all of the school day for both light and air. If in the middle of the afternoon the sun sometimes troubles, it is more easily managed than in the case of the east windows because of the schools closing while the sun is yet high.

Just as it is evident from wind conditions that the rooms should be opened toward the east, the south-east and the south, so looking at the matter from lighting conditions it is equally clear that rooms should be open toward the north-west, the west, and the north. The side best for light entrance is worthless for air entrance; and on the other hand, the side best for the inlet of air is poorest for the entrance of the light. Since air conditions, however, make it imperative that rooms shall be opened upon two sides these double demands for the light and the air create no difficulty. The solution is to have the rooms open on the north-west for the light, and upon the south-east for the air, but shaded upon the south-east side.

If climatic conditions must be taken into consideration in the ways here mentioned in the construction of school buildings, then it is possible to point out two types of buildings that will apparently satisfy the demand. In a type that most perfectly meets climatic demands, each story of the building consists of a single series of rooms. These rooms open full toward the north-west for light. They open full toward the south-east into

a corridor which runs along the entire south-east side of the building so as to shade the south-east opening of all of the classrooms without interfering with the currents of air. The windows of the outer walls of the corridor are as large as the windows for lighting purposes to the north or west. Since these corridor windows are chiefly for air and not light, they may be partially closed during the colder months of winter, with solid panels which can really have all the solidity and offer all the protection of permanent structures, but which are removable for summer conditions. If such large openings from class-rooms into the corridors tend to produce noise-interference, this must be looked after in the mode of designing the corridors; but having the outer corridor walls open during the summer months, creates corridor conditions that are not greatly different from the outside gallery conditions of many of the present schools.

A building constructed on the plan described, would be long, narrow, and straight. Owing to the way that San Antonio is laid out, it would be difficult to place upon most of the blocks such a long building facing the south-east. A more practical type of building plan would be the L-shaped building with the opening of the angle toward the south-east, and with the corridors within this angle, on the south and east sides, lighting being from the north and west. By placing the angle of the building at the north-west corner of the school block one wing will lie east and the other south. It may not be possible to give this type of building the structural proportions of the superb Crockett Building. Still almost any type of building can with care be made architecturally pleasing. But whether this be so or not, the physical welfare of the children demands that utility shall come before beauty, but in case either must be sacrificed, it is architectural beauty rather than the welfare of the children that should suffer.

As one examines the buildings at the Milam, the Burnet, or the Crockett schools, it is quite clear that the building evolution of the city has recently reached this L type of building. These buildings show that the city in carrying out the building evolution begun forty years ago, needs to take just one further step

in the way of the general plan to be used; this is to place the L-shaped type of building upon a block so that the full air openings to all the rooms shall be toward the south and east, and so that all of the light openings of the same rooms shall be toward the north and west. The city has actually evolved out of its experience the type of building here described.

Perhaps we should call attention to the fact that in buildings so constructed the second-story rooms are better than those of the first-story; and that, leaving aside the climb, **after they are reached**, the third-story rooms are better than those of the second-story. We are not here advocating a third-story. We would only call attention to the fact that where perfection of conditions is not attainable, we are sometimes confronted with the problem of choosing the lesser of two evils. San Antonio will sometime probably have the problem of choosing between an undesirable, enervating sultriness, and a somewhat undesirable amount of stair-climbing. While neither is desirable, it must be kept in mind that the sultriness continues through the entire long school day; while if toilet and rest rooms are properly placed, the day's amount of stair-climbing to one extra story may be accomplished in an extra minute or two. Naturally where possible, both evils will be avoided; but when confronted with a choice, it should be made upon a basis of San Antonio climatic conditions.

The type of building described provides in the simplest way for additions to the building. It is simply extended at either end with a minimum of expenditure and including only a minimum of extra ground space. The method of the past, of scattering buildings rather generously over the school grounds has resulted in a diminution of play space at a time when the increase in the number of pupils was increasing the need of such play spaces. Building plans should provide for additions without unnecessarily disturbing the play spaces.

As the school comes to be more and more used for community gatherings, community music, evening entertainments, etc., the advisability of providing a gathering place like that upon the roof of the Travis Club building will become in-

creasingly evident. During the day, such roof spaces can be used for folk-games, for gymnastic exercises, for both directed and free play of certain types, for the lunch room period, etc. While cities of colder climates are developing the indoor school auditorium and general meeting place, it would appear that San Antonio, taking into consideration climatic differences, will provide more of the open-air spaces.

Heating and Ventilating.

In all buildings at the present time, except the Crockett and those finished within the past year, heating is by means of stoves, and the ventilation by means of the windows. Visits to more than two hundred class-rooms while classes were in session showed no noticeably bad ventilation. The stove heat was sufficient to break the chill of the air. The windows without difficulty provided for sufficient change of air. The air generally felt like "live air" rather than the dry, parched, "dead air" so common in school rooms where windows are kept tightly closed and the air supplied by a mechanical ventilating system. The rooms seemed to be suffering neither from dryness of the air, lack of movement of the air, nor undesirably high or low temperatures.

Since many of the buildings of San Antonio must continue to use this mode of heating and ventilation, it is perhaps well to state here that for a city so located it will be very difficult greatly to improve upon the method. As a matter of fact, no method of mechanical ventilation has yet been invented that is so good as window ventilation when outside temperatures are so mild as forty degrees or above. It means moving air; it means desirable variation in the room temperature; it permits "live air"; it permits sufficient exit of foul air; and in an atmosphere like that of Texas it sufficiently provides for the humidity most of the time. No mechanical system can do more. Where a mechanical system is employed in San Antonio, it can safely be asserted that there ought to be window ventilation also for almost every day in the year. This is stated in spite of the general requirement that windows be kept strictly closed in order not to derange the mechanical ventilating system. This is in fact de-

sirable in a cold climate where ventilation must depend upon such a system. Such a requirement cannot be imposed upon the buildings in San Antonio, however, except for a relatively few days in the year. The nearest approach to really bad ventilation observed, was in a recently-built addition in which had been installed a stove and an automatic ventilating system with the requirement that the windows be kept closed in order not to derange the ventilation. Such automatic modes of ventilation which must depend upon gravity for the circulation are satisfactory only where the difference in temperature between outside and inside is very great. They are satisfactory for very cold weather in the north. They cannot provide satisfactory ventilation for a mild climate.

The chief objections to heating the rooms with stoves is the interruption caused by the entrance of the janitor for replenishing the fire occasionally; the space taken up by the stove, together with its jacket; the disfigurement of the room produced by this extra piece of furniture with its appurtenances; and the uncleanliness. There are also certain other remediable objections. At the present time the opening into the stoves very often faces the seats of the children, so that either the jacket has to be removed every time the fuel is replenished and then replaced, or the open side of the jacket is left facing the children at their seats. This condition can be remedied merely by reversing the direction in which the stove faces. When this is done, the open side of the jacket can always be turned away from the seats of the children and the jacket need not be moved in order to replenish the fire. At the present time, also, the jackets in general are unlined so that the children who sit nearest the stoves are often unduly warm. The jackets should by all means be lined with asbestos. If then they were fastened to the floor during that part of the year when the stoves must be left standing in the room, there is no reason why the asbestos might not last indefinitely. All stoves should be removed from classrooms during those portions of a year when stoves are no longer required. This removes most of the other objections to the stoves for the major portion of the year.

Each room should be supplied with a **reliable** thermometer. The ones now found are generally too cheap to be reliable. One's feelings constitute a better guide than a thermometer that registers several degrees above or below actual temperature. Care should also be taken in the placing of the thermometer in the room, so that it will provide a fair indication of actual room temperature. In one case a thermometer was observed fastened within the window frame with cold air blowing in on it through the chinks. The instrument registered a temperature fairly low, when as a matter of fact, the room was too warm.

Lighting.

With the introduction of the newer type of building represented by the Crockett or the Highland Park building certain aspects of the lighting problem have been completely solved. Lighting is now unilateral, the light entering from the left. The lighting surface is large, being entirely sufficient in every one of the newer rooms examined. The tops of the windows are straight and extend to within six inches of the ceiling, thus permitting the light to carry easily to the farthest row of desks in the room. The walls are tinted to harmonize with lighting needs. In these matters the most modern experience has been followed.

The orientation of the buildings seems not to have been so carefully studied. In the Highland Park, the Douglass, and the Beacon Hill schools, for example, the same general plans have been followed. In the Highland Park school, however, the windows face east and west; while in the case of the other two, the windows face north and south. The buildings named, are placed as though it were a matter of indifference which way they face; yet, as a matter of fact, the light coming from certain directions is much more easily controlled so as to prevent the glare than that coming from other directions. It is felt, however, that for San Antonio conditions, the lighting problem cannot possibly be solved satisfactorily in the case of a building of the square type, such as these. Rooms must of necessity

face either the east or the south, both directions being undesirable for San Antonio conditions.

Recommendations as to lighting have already been made with reference to future buildings. Certain recommendations are needed in the case of the buildings now in use, which must continue to be used for many years to come. In most rooms, the lighting is, or by means of certain minor adjustments, can be made quite satisfactory. Here and there, however, certain adjustments by way of improving the light are very desirable. In a certain very few cases attention is more than merely desirable. The welfare of the children makes attention imperative.

At the Bonham School for example, the two primary rooms to the west on the first floor of the main building are examples of highly defective lighting. There are 125 square feet of window space for the 1,000 square feet of floor space. This ratio is much too small under the best conditions; but in each of these rooms, the windows to the side have two-thirds of the light cut off by the recently erected additions to the building. At the back of the room, fully half of the light is shut off by the wide second floor gallery, by the trellis and vines, and by the foliage of the trees in the back yard. The intensity of the light in these two primary rooms is certainly less than a quarter of what it ought to be, and is highly prejudicial to the eyes of all the children except those seated near certain of the windows. In time these rooms may probably have to be condemned and used as store rooms. In the immediate present, however, certain adjustments should be made by way of doubling or trebling the quantity of light in the rooms. This can be done by painting the walls and ceiling pure white; by cutting down the quantity of black-board space in the rooms so as to have less black wall; by clearing away all vines and trellis from the veranda, and painting the ceiling and posts of the veranda pure white; by raising the tops of the three side windows to the ceiling with as large transoms as possible, and by trimming some of the trees immediately west of the rooms. Merely to have open windows is not enough for light. There must be freedom from obstruction for both direct and diffused light; and where difficulties are ex-

perienced, the walls and furniture of the rooms should be so cared for as to absorb as little light as possible.

The Navarro School presents still worse examples of the harmful effect upon the lighting of constructing additions without a due consideration of the effect of these additions upon rooms already built. Certain rooms in the Navarro where the window area is already too small relative to the floor area, the windows have been rendered largely or wholly ineffective by the building of wings which cut off large portions of direct and diffused light from the outside, and by the planting or the continuance of foliage trees where they shade such windows. I visited these rooms on a fairly bright afternoon, and found certain of them so dark that it was impossible to read my notes in certain portions of the rooms without holding them up so as to get a specially favorable light from the windows. In certain of the rooms, the ratio of effective window space to floor space was less than 1 to 10. Since many of these rooms must be used for many years to come, the school city should take advantage of as many ways as possible of relieving the situation as already specified in case of the Bonham. By properly controlling the various factors that enter into the lighting situation, practically every room in all the schools can be lighted sufficiently for immediate purposes. In practically every case of insufficient lighting as in the primary rooms at No. 4 and No. 5, in the sewing room at the Brackenridge High School, in the study room at the Main Avenue High School, in the central second-story room at school No. 21, etc., etc., by taking the matter in hand in ways already suggested, a sufficient amount of light can in most cases be provided at comparatively little expense. It appears evident that the lighting factors have never been properly studied. In the case of the relatively few rooms where the lighting is questionable, it would appear that the Board ought to send its medical examiner and an expert optician to make careful examination in the light of well-accepted standards of lighting, and to report conditions to the board. Were this done, inexcusable conditions now existing could not well continue.

In considering increasing the intensity of the light in any room the board and the superintendent of buildings and grounds should keep in mind such factors as the following:

(1) The possibility of whitening ceilings, walls, doors, door and window trim, space covered by a portion of the black-board; and of using lighter colors of wood in desks, furniture and floors.

(2) The possibility of raising the tops of the windows, or of introducing transoms above windows. In the poorly lighted rooms often there is abundant space above the windows. For room lighting, the top part of the window is worth two or three times as much as the lower half of the window.

(3) The possibility of opening double windows in place of the single ones. A slender steel mullion can easily be placed in the middle of the present window and windows opened on either side of it, thus doubling, at very small expense, the lighting surface of the window.

(4) The whitening of surfaces of wings of buildings, of verandas, etc., so that they may aid in the transmission of diffused light from the outside.

(5) The cutting away of all vines and shade trees or portions of such trees as unduly interfere with the lighting of the windows. It is possible to plant trees, shrubbery, vines in such portions of the school yard that the lighting of the rooms will not be unduly interfered with.

(6) The use of translucent curtains for breaking the glare from transoms and high small windows, the glass of which is now often painted to prevent the glare. The use of translucent curtains would permit a clear light on cloudy days and would shut out the glare without shutting out the light on bright days.

(7) The occasional use of artificial lighting of a type that is steady and which does not consume the oxygen of the rooms.

We have thus far discussed the control of light where there was a deficiency. Another large problem discovered everywhere in the schools of San Antonio was how to control the light when there was an excess of direct sunlight. Most rooms secured some

of their light at least from the east, south, or west windows through which at some portion of the day the direct sunlight enters. The city appears to be trying out quite a variety of blinds, no one of which is altogether satisfactory for this particular problem. When the dark cloth curtains or the Venetian blinds are used to shut out the direct sunlight, they usually shut out the diffused light as well, and the rooms are made unduly dark. The rooms are then compelled to secure too much of the light from the back or the wrong side of the room. The question is how to have the light without the glare. The best solution thus far found is the use of a white translucent shade, which gives a soft, ground-glass effect when lighted by the direct sunshine and thus affords an abundance of good diffused light without permitting the glare. When the direct sunshine does not enter or upon cloudy days, these translucent shades can be thrown up and the full clear diffused light from outside permitted to enter. Such translucent shades should be used in certain rooms in practically all buildings. In the warmer months when the windows to the south and east must be open for the sake of the air and yet protected from the direct sunlight, it is possible to use the translucent shades at the top of the windows and the open Venetian blinds for the bottom half of the windows; or to use awnings protecting only the lower half.

In very many of the rooms visited improper lighting conditions were found because of a lack of attention to the blinds on the part of the teacher and pupils. In one room visited where they were having trouble with the morning sunlight through the east windows, a student was sent to lower the east blinds so as to shut out the glare. He also lowered the blinds from the north and west from which there was no direct sunlight. These latter blinds should have been opened full instead of being drawn down. The result was that the room was unnecessarily darkened; and the teacher seemed not to notice. If a teacher knows what ought to be done in the regulation of the blinds, it requires very little thought or care to keep them properly regulated through the day. It is a task that should be given over,

however, to individual pupils, each serving a limited time, as a portion of their training.

Cloak Rooms and Wardrobes.

An examination of the book, "Grade School Buildings", by Wm. C. Bruce, of the American School Board Journal, shows that the so-called sanitary wardrobe, such as employed in the newer buildings in San Antonio, is not much used. The cloak-room is almost everywhere considered the better arrangement. It is a little more expensive, since it takes up a little more space. It is generally considered enough better to warrant the cost.

When the sanitary ward-robos are used they certainly should not be placed at the teacher's end of the room, as in some of the rooms in the Highland Park Building and the others of the same type. One of the obstacles to rational building plans so often cropping up in the system is an inordinate love of symmetry. Symmetry is not always necessary to good appearance; and in any case, the welfare of the work of the school is a thing of greater need than mere building symmetry.

Furniture and Equipment.

The new buildings and the additions are being equipped in the most modern way. Only the most improved and adjustable desks are being purchased. Black-boards are of slate and provided with sanitary mesh-protected ledges. The manual training rooms are being equipped with the very best quality of work benches, and with a full assortment of tools and appliances. The domestic science rooms are being equally well equipped with both furnishings and utensils. Every school, whether domestic science center or not, is amply supplied with sewing machines. The toilet fixtures that are recently being installed are thoroughly modern and sanitary.

Furniture and equipment for the schools have already been pretty thoroughly studied by those in charge. There are a few things, however, that ought to be mentioned.

Buildings should be supplied with telephones. The schools need daily communication with the school board office, with the school physician, with officers of parents' or other associations co-operating with the work of the schools, etc. The fact that principals, teachers, and janitors, are all putting in telephones and paying for them at their own expense is clear proof that the need exists. Such telephones need not be listed in the city directory.

The recently-constructed schools are well supplied with superior types of automatic drinking fountains, both within the buildings and in the school yards; and they are also supplied with a fairly generous number of standing wash basins. Many of the schools, however, are in need of the lavatory facilities and improvements of the improved drinking fountain so as to make them sanitary. These are matters in which the school physician should have a voice.

At a number of the buildings in primary rooms permanent lines have been drawn upon the black-board with either white or green paint. This is an excellent device which ought to be extended to all buildings. Lines should not be so far apart as in certain buildings observed, nor so near together as in one of the buildings observed. The green line is much better for the purpose than the white line, since the white lines do not clearly distinguish themselves from the white lines of the chalk. The lines are only to be seen during the writing. They are not to be easily visible to the class reading the work. The green lines will be found to be unobtrusive. In the high school, in rooms where mathematics is taught or where graphical work of any sort is done, as for example, in classes of physics or civics, cross section lines, preferably in green, should be permanently placed upon the black-board. They will be found useful in a variety of ways, and are great time savers for certain types of work.

Reference needs to be made to the placing of black-boards. Cases were found where the boards in the primary rooms were too high for the pupils' convenient use, and in upper grade rooms, where the boards were placed too low for proper use. Judging

from current practice, it would appear that black-boards in the first two primary rooms should be placed about twenty-six inches from the floor; in the third and fourth grade rooms, about twenty-eight inches from the floor; in the fifth and sixth grade rooms, thirty inches from the floor; in the seventh and eighth grade rooms, thirty-two inches from the floor; and in the high school grades, about thirty-six inches from the floor. The width of the board should be adapted to the uses to which it is to be put. The front board that must be used by both pupils and teacher should be fairly wide, extending upward as high as it is convenient to use a board. Other black-boards in the room, however, should not be wider than the pupils' use demands. For the lower grades they need not be more than thirty inches wide, for the grammar grades thirty-six, and for the high school, forty-two. There should not be more black-board space than is actually needed for the work because of its absorption of light. Many San Antonio rooms appear to be over-supplied with black-board space.

The Buildings as an Educational Influence and Opportunity.

Where children spend their days, month after month and year after year, in a building such as the Crockett with its imposing lines within and without, its spacious and tastefully appointed rooms and corridors, its sanitary accommodations, etc., a highér appreciation of housing conditions unconsciously and without effort grows up in the pupils. Without knowing why they tend to become more impatient than they would otherwise be of disorder in housing arrangements, of cluttered-up rooms and corridors, of uncleanness, of unsightly color schemes, of darkened rooms, of insanitariness, etc. No part of their education that they get from books is any more important or more far-reaching than this. From the first grade to the end of the high school, they are being taught literature, and music, and drawing, the purpose in large degree being the development of aesthetic appreciation. These studies can be no more influential probably than attractive and pleasing buildings and grounds,

in the actual midst of which they must spend their formative years.

If on the other hand, the pupils must spend their days, month after month, and year after year, in class-rooms in which every aesthetic line is broken by the arrangements; the furniture, the so-called sanitary ward-ropes, undesirable color schemes, mouldings of black-boards and window panes dashed with the wall tint, broken plaster, new black-boards superposed over old ones with the old ones showing out at the bottom for six or eight inches in most unsightly fashion, black-boards placed in the walls as patches with plastered spaces between, etc., etc.,—if every law of good taste is broken by the arrangements and appointments of the room, the education is no less effective than in the former case. It is, however, education to slovenliness, to contentment with ugly and even insanitary housing conditions. Such a powerful education influence as one's environment can not be counteracted by the mere dosing of students with things out of books. The conditions under which one lives, are the things that mostly educate one. Book work can only be supplementary.

We are not here advocating an extravagant outlay of money in the construction of new buildings and the condemning of old. As a matter of fact, most of the buildings now in use must be made to serve for many years to come. The thing we are referring to is the making the best of the old buildings. Most of them present sufficient dignity from the outside. Very many of the school-rooms, however, need to be studied by the art department as part of their applied studies in household decoration and arrangement, and recommendations made for improvements on the aesthetic side,—matters of line, and form, proportion, and color. Many of the rooms at the present time inexcusably ugly are not so because of any present building necessity. They are simply so because the principles of household decoration and arrangement have not yet filtered through to them. It has reached the newer buildings, because experts have been set to work, and their ideas have been moulded into the

structures. The same kind of ideas need to reach every room in the old buildings, even as much as in the new.

After the planning is done by students and teachers, a large portion of the actual work should be done by these same students and teachers, by way of putting into effect things that have been wrought out in the studies. Character is shaped chiefly not through thinking alone but through putting into effect the results of our thinking. The shop classes, the sewing and embroidery classes, students of mechanical drawing, those engaged in matters of color harmony, painting, stenciling, decoration, need for educational purposes to embody their ideas into permanent form. They need to do the work for educational purposes. This is not mentioned here merely because it saves money to the community. It ought to save community money, will not properly be done unless it does; but the primary purpose of putting the work as largely as possible into the hands of students and teachers, is the educational one.

In my notes I find reference to scores of minor matters that need attention and correction. It is not really the business, however, of an outsider to go into these relatively detailed matters. Perhaps I have done so to too large an extent as it is. The central thing to be recommended here is that the school city get its teachers and students to making surveys of the detailed needs, drawing up detailed plans as to how each specific thing is to be corrected, and finally setting the various manual and art workers to the task of making the corrections as far as possible. When this is done it is felt that the old buildings can be made attractive and sanitary for as long as they have to be used.

Chapter XIV.

FINANCE.

The business agent is using the thoroughly modern system of financial accounting that is being standardized in the school accounting offices throughout the country. No attempt was made to examine the accounts in detail. So far as my information goes, there is no reason to call them into question. Moreover, such an auditing of accounts is a task for an experienced expert accountant.

We wish to call attention to but a single thing: the need of having standards of financial expenditure based upon the experience of similarly situated cities as the basis of judgment in connection with each item of expenditure.

For example, how much should a city spend annually for janitors per class-room? A reply can be found in the experience of many cities. Table 17 shows the practice in 19 southern cities. A medium amount is \$53.00 per class-room. San Antonio expends \$71.00 per class-room per year. This is \$16.00 per room greater than required in Dallas; \$22.00 more than in Fort Worth; twice as much as in Atlanta, etc.

Table XVII.
Annual Cost of Janitors per School Room.

St. Joseph	\$ 105.00
Kansas City	96.00
Memphis	91.00
Oklahoma City	71.00
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SAN ANTONIO	71.00
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Louisville	68.00
Norfolk	63.00
Houston	58.00
Dallas	55.00
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Birmingham	53.00
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Richmond	52.00
Fort Worth	49.00
New Orleans	48.00
Nashville	43.00
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Atlanta	35.00
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Savannah	32.00
Charleston	24.00
Mobile	24.00
Jacksonville	21.00

Such a situation does not prove that San Antonio is spending too much. Conditions may be sufficiently different; or standards in the quality of the work may be higher. If so, these things should be known before the city is satisfied with the present situation.

How much should the city expend for instruction supplies per pupil? Again it is the general practice of cities that will serve as a basis of judgment. The general practice of cities of the same population as San Antonio is shown in Table 18.

Table XVIII.
Cost of Supplies for Instruction, per Pupil.

Springfield, Mass.	\$ 2.92
Spokane	1.81
Grand Rapids	1.74
New Bedford	1.48
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Houston	1.41
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Camden	1.25
Trenton	1.11
Hartford	1.04
Cambridge91
<hr/>	
Dayton75
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Fall River74
Albany70
Omaha70
Dallas47
<hr/>	
Lowell43
<hr/>	
SAN ANTONIO31
Bridgeport31
Nashville .....	.25
Fort Worth .....	.23

San Antonio is expending thirty-one cents per pupil while Houston spends \$1.41, or four and one-half times as much. Dallas is expending fifty percent more. San Antonio is not doing well in this aspect of the work. As we have tried to point out in the report, it is probably very false economy after expending so much to try to economize on the indispensable things used by the pupils.

Often it is anything but economy for the parents. Take, for example, the matter of ink. If each pupil buys a bottle per term, ten cents per year, the cost to the parents is \$1,000 a year. If the school city purchased ink crystals and made their own ink the same amount of ink would cost about \$125.00 a year,—and paid ultimately by the same parents. Besides the desks would not be littered up with ink bottles tied on their tops with string to keep them from being knocked off, with perfectly good patent ink-wells in their desks.

We referred to the need of new buildings in a previous chapter. Has San Antonio been spending as much as she ought for buildings? Actual expenditures covering many cities for, let us say, the past thirty years, for comparative purposes are not at hand. The figures of the Commissioner of Education are too incomplete. We have an index of past expenditures in the present valuation of buildings. Table 19 shows in some degree how much San Antonio has been exerting herself as compared with other southern cities. She is far behind Dallas, Houston, or Fort Worth. When one considers further the number of buildings that have been given to the city by Col. Brackenridge, in actual effort shown, the city should be placed very much lower on the list,—in fact pretty near the bottom. The city should remember that it is hard-headed business men behind the support given in Houston, Dallas, Galveston, El Paso, and Fort Worth, all of which stand high on the list.

Table XIX.

Present Valuation of Buildings, per Class-room.

Newport	\$ 7675.12
Oklahoma City	6138.31
Fort Worth	5698.99
Chattanooga	5495.03
Austin	5421.31
Memphis	5415.61
Little Rock	5000.00
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El Paso	4886.57
Galveston	4789.47
Dallas	4757.98
Savannah	4695.74
Charleston	3983.36
Houston	3922.75
Nashville	3729.75
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Louisville	3657.17
Covington	3653.33
Richmond	3626.33
Norfolk	3157.57
SAN ANTONIO	2997.48
Augusta	2965.26
Mobile	2875.00
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New Orleans	2747.88
Portsmouth	2738.88
Tampa	2486.86
Lexington	2211.76
Jacksonville	1876.95
Macon	1724.24
Charlotte	1090.68

In the matter of current operation and maintenance of schools, is the city doing its duty? Is it investing in public education a sufficient amount per pupil? Table 20 shows that the city, as compared with other southern cities is fairly generous in the support of the elementary schools. In spending thirty-one dollars per pupil, the city stands very near the top of the list.

Table XX.

Cost of Elementary Education, per Pupil.

Kansas City	\$ 35.00
Memphis	35.00
New Orleans	32.00
Houston	32.00
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St. Joseph	32.00
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SAN ANTONIO	31.00
Oklahoma City	30.00
Louisville	28.00
Little Rock	28.00
<hr/>	
Nashville	28.00
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Fort Worth	27.00
Birmingham	25.00
Richmond	25.00
Norfolk	24.00
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Atlanta	21.00
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Mobile	20.00
Charleston	20.00
Savannah	20.00
Jacksonville	16.00

How is it in the case of the high schools? The figures given in Table 21 are for the year 1912, as reported in the "Financial Statistics of Cities," published by the Census Bureau. Relative to what other cities are doing, San Antonio is not doing nearly so well by its high schools as it is by its elementary.

Table XXI.
Cost of High School, per Pupil.

Oklahoma City	\$ 108.00
Charleston	91.00
Kansas City	84.00
New Orleans	81.00
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Louisville	79.00
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Jacksonville	74.00
Savannah	71.00
Atlanta	71.00
Memphis	64.00
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St. Joseph	61.00
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Fort Worth	60.00
Houston	56.00
Richmond	55.00
SAN ANTONIO.....	53.00
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Birmingham	50.00
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Little Rock	48.00
Mobile	46.00
Nashville	41.00
Norfolk	31.00

As compared with cities through the country in general of the same population class, how well is San Antonio doing by her schools? Table 22 is of the type that can be used with profit by the city when considering such a question. The standing as shown in the table may be justified; or it may not be. It needs at least to be explained.

Table XXII.

Cost of Elementary Education, per Pupil.

Spokane	\$ 44.00
Salt Lake	42.00
Springfield, Mass.	41.00
Grand Rapids	40.00
Camden	39.00
Tacoma	38.00
Albany	38.00
Trenton	37.00
Hartford	37.00
Lowell	37.00
Fall River	36.00
Omaha	35.00
Dayton	34.00
Cambridge	33.00
New Bedford	33.00
SAN ANTONIO	31.00
Nashville	28.00
Reading, Pa.	28.00
Bridgeport, Conn.	24.00

In explaining the relative position of the city in the foregoing table, one thing to be examined into is the size of the burden of taxation that is being borne by the city. Are the people of San Antonio heavily taxed? Table 23 shows relative burden per capita as compared with southern cities; and Table 24 shows the same for cities in general of the same population class.

Table XXIII.

Total Property Tax per Capita, all Purposes.

Oklahoma City	\$ 18.89
Dallas	16.96
Kansas City	16.51
Houston	16.10
Richmond	15.94
Louisville	14.77
New Orleans	14.56
Ft. Worth	13.47
SAN ANTONIO	13.34
Norfolk	12.56
Memphis	12.44
St. Joseph	11.59
Atlanta	11.14
Savannah	10.61
Nashville	10.00
Jacksonville	9.41
Charleston	9.16
Mobile	6.49
Birmingham	5.83

The tables show that the city is neither backward nor advanced in willingness to bear a heavy tax burden per capita,—but simply average, neither high nor low on the scale. When one considers, however, the large proportion of propertyless Mexicans who make up the population, it is possible that those actually paying the taxes should be ranked higher than shown in these tables.

Table XXIV.
Total Property Tax per Capita, all Purposes.

Hartford	\$ 22.48
Springfield, Mass.	21.33
Cambridge	19.15
Dallas	16.96
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Omaha	16.39
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New Bedford	15.86
Albany	15.75
Bridgeport	14.94
Salt Lake City	13.38
<hr/>	
SAN ANTONIO	13.34
<hr/>	
Grand Rapids	13.14
Fall River	13.05
Dayton	12.84
Lowell	12.68
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Spokane	12.28
<hr/>	
Trenton	10.21
Nashville	10.00
Reading	8.30
Camden	7.78

Is the city able to distribute the building outlays needed in the near future by further bonded debt? Adding the recent bond issues to the previous debt, the city stands relatively about as shown in Table 25. The total city debt is not much more than half that of Houston; considerably above that of Dallas; of medium size in fact.

Table XXV.
Total (Net) City Debt, per Capita.

Rank.		
1.	New Orleans	\$ 121.00
2.	Houston	97.23
3.	Norfolk	93.66
4.	Memphis	73.78
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5.	Charleston	69.01
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6.	Richmond	68.55
7.	Oklahoma	67.42
8.	Fort Worth	55.92
9.	Mobile	53.57
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10.	SAN ANTONIO	50.17
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11.	Nashville	49.55
12.	Louisville	49.30
13.	Savannah	42.94
14.	Dallas	42.88
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15.	Birmingham	36.61
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16.	Jacksonville	32.04
17.	Kansas City, Mo.	31.32
18.	Atlanta	29.12
19.	St. Joseph	27.98

Naturally, with so limited knowledge of the financial situation, we are making no recommendations in connection with these things. We wish only to point to the need of objective facts relative to current practice as basis of thought in considering financial problems. We have presented only a few sample illustrative tables merely to show what might be done. The city needs such comparative tables in connection with every important aspect of financial expenditures. Where a city is investing over half a million dollars annually in public education, the size of the outlay is sufficient to warrant the current accumulation or the necessary comparative facts. It is a task that should be carried through currently under the direction of the business agent, the assistant superintendent, and the head of the high school commercial department.

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